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TECHNICAL MANUAL
MIXING MACHINE, FOOD, ELECTRIC
MODEL DD-80T

BLAKESLEE, DIV. OF BLAKO
1844 S. LARAMIE AVE.
CHICAGO, ILLINOIS 60650
FSCM 7L611



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APPROVAL AND PROCUREMENT RECORD

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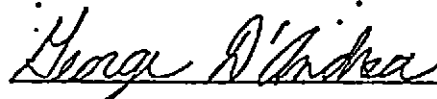
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REMARKS: MANUAL COVERS COMPLETE MIXER LINE FOR BOTH MODELS DD-50 AND DD-80 IN ALL CONFIGURATIONS OF FINISH, ACCESSORIES AND VOLTAGE.

DATE: 9/18/92

CERTIFICATION:

IT IS HEREBY CERTIFIED THAT THE TECHNICAL MANUAL PROVIDED UNDER CONTRACT NUMBER DLA 441-92-C-0600 FOR MIXING MACHINE, FOOD, ELECTRIC, MODEL DD-80T HAS BEEN APPROVED BY THE APPROVAL DATA SHOWN ABOVE.



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2. PURPOSE: THIS TECHNICAL PUBLICATION IS ISSUED FOR THE PURPOSE OF IDENTIFYING AN AUTHORIZED TECHNICAL MANUAL FOR NAVY USE AND FOR PROVIDING SUPPLEMENTAL TECHNICAL INFORMATION.
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1 through 38 39.....	0		

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SAFETY SUMMARY

THE FOLLOWING ARE GENERAL SAFETY PRECAUTIONS THAT ARE NOT RELATED TO ANY SPECIFIC PROCEDURES AND THEREFORE DO NOT APPEAR ELSEWHERE IN THE PUBLICATION. THESE ARE RECOMMENDED PRECAUTIONS THAT PERSONNEL MUST UNDERSTAND AND APPLY DURING MANY PHASES OF OPERATION AND MAINTENANCE.

KEEP AWAY FROM LIVE CIRCUITS

OPERATING PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS. DO NOT REPLACE COMPONENTS OR MAKE ADJUSTMENTS INSIDE THE EQUIPMENT WITH THE HIGH VOLTAGE SUPPLY TURNED ON. UNDER CERTAIN CONDITIONS, DANGEROUS POTENTIALS MAY EXIST WHEN THE POWER CONTROL IS IN THE OFF POSITION, DUE TO CHARGE RETAINED IN CAPACITORS. TO AVOID CASUALTIES, ALWAYS REMOVE POWER AND DISCHARGE AND GROUND A CIRCUIT BEFORE TOUCHING IT.

DO NOT SERVICE OR ADJUST ALONE

UNDER NO CIRCUMSTANCES SHOULD ANY PERSON REACH INTO OR ENTER THE ENCLOSURE FOR THE PURPOSE OF SERVICING OR ADJUSTING THE EQUIPMENT EXCEPT IN THE PRESENCE OF SOMEONE WHO IS CAPABLE OF RENDERING AID.

RESUSCITATION

PERSONNEL WORKING WITH OR NEAR HIGH VOLTAGES SHOULD BE FAMILIAR WITH MODERN METHODS OF RESUSCITATION. SUCH INFORMATION MAY BE OBTAINED FROM THE BUREAU OF MEDICINE AND SURGERY.

THE FOLLOWING WARNINGS AND CAUTIONS APPEAR IN THE TEXT IN THIS VOLUME, AND ARE REPEATED HERE FOR EMPHASIS.

WARNING!!

DO NOT ATTEMPT TO REMOVE OR DISASSEMBLE MIXER COMPONENTS FOR REPAIR OR MAINTENANCE WHILE MIXER IS CONNECTED TO POWER SUPPLY.
FAILURE TO DO SO, MAY RESULT IN BODILY INJURY AND/OR DEATH.

W A R N I N G !

OPERATOR SHOULD BE WELL TRAINED INDIVIDUAL, 18 YEARS OF AGE OR OLDER, AS THIS MACHINE HAS POTENTIALLY *HAZARDOUS MOVING PARTS*. DISCONNECT POWER SUPPLY BEFORE INSTALLING OR REMOVING ACCESSORIES AND/OR CLEANING ATTACHED PARTS.

ENSURE ALL GUARDS ARE FIRMLY SECURED; REPLACE ANY MISSING GUARDS.

FAILURE TO DO SO, MAY RESULT IN BODILY INJURY.

CAUTION: DO NOT SHIFT GEARS WITH MOTOR RUNNING. SHIFT LEVER IS IN NEUTRAL IN HORIZONTAL POSITION.

CAUTION: IF HIGHER THAN RECOMMENDED SPEEDS ARE EMPLOYED AND/OR LISTED CAPACITIES ARE EXCEEDED, OVERLOAD CONDITION WILL RESULT.

SAFETY SUMMARY

IMPORTANT!

INSTALLATION MUST BE MADE OBSERVING ALL APPLICABLE ELECTRICAL/ LOCAL CODES.

ATTENTION OPERATOR!

MACHINE EQUIPPED WITH THERMAL OVERLOAD MOTOR PROTECTION. IF MACHINE SHUTS DOWN DURING OPERATION, CHECK BATCH LOAD BEING MIXED TO ENSURE PROPER CAPACITY, AND ALLOW OVERLOAD TO AUTOMATICALLY RESET. INTERVAL TIME FOR OVERLOAD TO RESET WILL VARY, ACCORDING TO CONDITIONS.

INSTALLER WARNING!

ELECTRICIAN

ENSURE TO DOUBLE CHECK MOTOR ROTATION IS CORRECT WHEN MACHINE HAS BEEN CONNECTED AND YOU ARE READY TO PROCEED WITH ACTUAL TEST OPERATION OF MACHINE PER INSTALLATION INSTRUCTION. SHOULD MOTOR ROTATION BE INCORRECT INTERCHANGE ANY TWO (2) LINE LEADS IN A THREE PHASE SYSTEM.

CAUTION

DO NOT ATTEMPT TO OPERATE MACHINE WITHOUT ATTACHMENTS OR AGITATORS AND BOWL BEING PROPERLY INSTALLED, AS DAMAGE TO COMPONENTS MAY INCUR. FAILURE TO DO SO MAY RESULT IN BODILY INJURY.

CAUTION

IF LUBRICATION IS APPLIED TO THE AUXILIARY HUB, A GREASE-LIKE SUBSTANCE WILL LEAK OUT CAUSING POSSIBLE CONTAMINATION TO THE PRODUCT BEING MIXED.

TABLE OF CONTENTS

	PAGE
LIST OF ILLUSTRATIONS	
SPECIFICATION	1
GENERAL INFORMATION	3
AGITATOR/ACCESSORY CHART	12
INSTALLATION INSTRUCTION.....	14
OPERATING INSTRUCTIONS.....	17
MAINTENANCE	19
CORRECTIVE MAINTENANCE REPAIR/REPLACEMENT.....	20
TROUBLE SHOOTING GUIDE	23
ILLUSTRATED PARTS LIST	24
RECOMMENDED SPARE PARTS LIST.....	34
VENDOR LISTING	36
WIRING DIAGRAM	37
MOTOR TABLE	38
WARRANTY	39

LIST OF ILLUSTRATIONS

PLANETARY ACTION OF AGITATORS	PG. 3
ACCESSORIES, AGITATORS	PG. 4 & 5
MIXING BOWL CAPACITY CHART.....	PG. 9
AGITATOR/ACCESSORY CHART	PG. 12
INSTALLATION DETAIL & DIMENSIONAL DRAWING	PG. 16
SHIFTING INSTRUCTION	PG. 17
COLUMN WELDMENT, UPPER HOUSING, MAIN SHAFT AND ELECTRICAL COMPONENTS	PG. 25
BOWL SUPPORT, BOWL SUPPORT CRANK AND BOWL LOCKDOWN ASSY	PG. 27
MOTOR MOUNTING BRACKET ASSY	PG. 29
MOTOR AND POWER TRAIN ASSY	PG. 30
AUXILIARY HUB ASSY	PG. 31
LOWER PLANETARY AND BEARING HOUSING ASSY.....	PG. 32
PLANETARY AND BEATER SHAFT ASSY.....	PG. 33
WIRING DIAGRAM	PG. 37
MOTOR TABLE	PG. 38

SPECIFICATIONS

MODEL DD-60/DD-80

NOTE: ADDITIONS TO MODEL DESIGNATIONS.

"T" INDICATES UNIT WITH TIMER. "D" INDICATES DELUXE UNIT.

"DT" INDICATES DELUXE UNIT WITH TIMER.

TRANSMISSION. HEAVY DUTY, FOUR SPEED TRANSMISSION OF HARDENED ALLOY STEEL. UNIQUE ELECTRO-MECHANICAL INTERLOCK DISCONNECTS POWER IF SPEED SELECTOR LEVER IS MOVED WHILE MIXER IS RUNNING.

IMPORTANT SAFETY FEATURE...

MOTOR CANNOT BE STARTED WHEN SPEED SELECTOR LEVER IS IN NEUTRAL POSITION... PREVENTS MIXER FROM BEING STARTED ACCIDENTALLY BY MOVEMENT OF SPEED SELECTOR LEVER.

SPEEDS. OPERATING SPEEDS SHOULD BE PRE-SELECTED BUT CAN BE CHANGED DURING OPERATION. MOTOR MUST BE RESTARTED AFTER CHANGING SPEEDS.

	AGITATOR (RPM)	AUX. DRIVE SPEED (RPM)
FIRST.....	55	105
SECOND.....	100	190
THIRD.....	175	300
FOURTH	315	575

MODEL DD-60

MOTOR. 2 H.P., HIGH TORQUE, BALL-BEARING GREASE PACKED VENTILATED INDUCTION MOTOR MOUNTED IN DRIP-PROOF ENCLOSURE.

VOLTAGE

110/120	60HZ	1PH	24 AMPS
208/240	60HZ	1PH	12 AMPS
220/240	60HZ	3PH	6.8 AMPS
440/480	60HZ	3PH	3.4 AMPS

50 CYCLE/MOTORS OPTIONAL

MODEL DD-80

MOTOR. 2 H.P., HIGH TORQUE, BALL-BEARING GREASE PACKED VENTILATED INDUCTION MOTOR MOUNTED IN DRIP-PROOF ENCLOSURE.

VOLTAGE

110/120.....	60HZ	1PH	24 AMPS
120/240.....	60HZ	1PH	24/12 AMPS
220/240.....	60HZ	3PH	6.8 AMPS
440/480.....	60HZ	3PH	3.4 AMPS

50 CYCLE/MOTORS OPTIONAL

SWITCH. MAGNETIC PUSH-TYPE WITH AUTOMATIC RESETTING BIMETALLIC OVERLOAD PROTECTION INTERNALLY MOUNTED. "START-STOP" BUTTONS ARE PROTECTED BY RUBBER CAPS. REDUCED VOLTAGE PILOT CIRCUIT TRANSFORMER SUPPLIED FOR THREE PHASE MACHINES OVER 250 VOLTS.

LUBRICATION. TRANSMISSION AND ALL GEARS LIFE-TIME PROTECTED WITH SYNTHETIC LUBRICANT.

STANDARD EQUIPMENT. STAINLESS STEEL BOWL, "B" BATTER BEATER, "W" WIRE WHIP, "SH" SPIRAL DOUGH HOOK, TIMER AND ACCESSORY ATTACHMENT HUB PROVIDED AS STANDARD. BOWL AUTOMATICALLY LOCKS IN UP AND DOWN POSITIONS. ADJUSTMENT FOR PROPER CLEARANCE BETWEEN BOWL AND AGITATORS PROVIDED THROUGH ACCESS AT FRONT OF COLUMN.

FINISH. HIGH QUALITY ENAMEL FINISH OVER CAREFULLY APPLIED UNDERCOATS. STAINLESS STEEL SPLASH SHIELD ON FRONT OF COLUMN. SILVER GRAY STANDARD. BEIGE AND DELUXE STAINLESS STEEL OPTIONAL.

BOWL CAPACITY

MODEL DD-60, 60 QT. (57 LTR).

MODEL DD-80, 80 QT. (76 LTR)

NSF, UL, CSA CERTIFIED.

GENERAL INFORMATION

Your Blakeslee Mixer is just one piece of equipment that provides extra profit in your operation. Consistency of performance will reduce waste and maintain better control over yield.

Your Blakeslee-built mixer has been designed and engineered to assist you in the quick and easy preparation of fine tasting, quality foods. It is a valuable machine deserving the same maintenance and attention your other kitchen equipment now receives. By following the suggestions in this booklet, your mixer will operate for many trouble-free years.

This booklet has been prepared to give you the necessary knowledge for correct operation, load, and lubrication of your mixer.

The food service operator will also be able to save you labor during the cleaning process due to the smooth surfaces and the design of the Blakeslee mixer. Each beater, whip and attachment is engineered to perform specific jobs for you. The planetary action of Blakeslee Mixers (beater travels around the circumference of the bowl as it rotates) assures you of a perfectly blended mix every time.

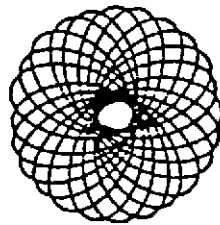


Diagram shows complete coverage of bowl by planetary action of agitators

DESIGN AND USE OF BEATERS, WHIPS & OTHER ACCESSORIES

Each beater and whip has been designed to do a particular type of work. Use only that beater or whip for the work for which it was designed. For example: Never use a batter beater for mixing heavy doughs. Always use an "H" or a "SPIRAL" dough hook for dough work.

Following are illustrations of the different types of beaters and whips with an explanation of the work and the use for which they were designed.

BOWL EXTENSIONS



Extension Rims are merely vertical sided Splash Covers. They are not covers in form but do provide higher side walls to prevent throw-out of ingredients. Usually they are not recommended because they are often invitations to overloading a machine beyond its point of maximum efficiency. Extension rims permit more air to enter the bowl and prevents splash of light ingredients.

The true capacity of a Mixer is not the amount of material that can be put in the bowl or the amount of total batch which can be mixed within the power of the motor. The true capacities and the most efficient (therefore the best money makers) are the ideal loads which permit a Mixer to operate at peak efficiency, so far as development, yield or aeration have their effect on the mixing operation.

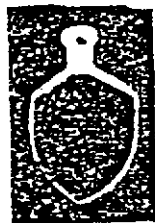
"SPIRAL" DOUGH HOOKS

(Available for 60 and 80 qt. bowls only)



Used for mixing bread of roll dough of standard consistency, biscuits, meat loaf, etc. The "SPIRAL" dough hook is a special dough hook for mixing heavy doughs such as white, graham or rye bread, noodles, pretzels, Italian bread and pizza. Dough hooks should always be operated at slow speed only. Do not use other types of beaters for dough work; doing so will result in damage to either the beaters or to the mixer proper. Never exceed capacities as listed.

"PK" PASTRY KNIFE



Used for cutting flour and shortening together in pie dough, pastry shells and for cutting lard or shortening into flour. The "PK" pastry knife should always be used for such work so that pie crusts, etc., are mixed with as little rubbing as possible and so that the shortening will be in small pieces to produce a flaky product.

SPLASH COVERS



These items provide means for reducing splash of throw-out on certain mixers when, for reasons of speed, the operator prefers to start in a higher speed or progress quickly to a high speed in order to complete a batch. These are valuable accessories but should not be used to increase the mixing capacity of any particular machine, beyond its recommended maximum. They are convenience items, not capacity increasers. The best functioning of Blakeslee Mixers depends on leaving room for proper material aeration or manipulation. Use splash Covers or Extenders only for containing ingredients. They are efficient for their intended use, but if a Mixer is overloaded and a Splash Cover is used, aeration is reduced due to restriction in the area where air enters the mix. The capacity chart located on the column of the Mixer is a good guide for maximum efficient use for the Mixer. Experience will have to dictate exact top capacity and Splash Cover use under your own needs.

"B" BATTER BEATER



Furnished as part of standard equipment. Used for mixing batters such as cake and muffin batters, creaming butter, mashing potatoes and vegetables, light cakes, icings and the average run of light work. Never use this beater for heavy dough work. When mashing potatoes, etc., it is advisable to start with the bowl at its lowest position and then as the potatoes or other ingredient break up, the bowl should be gradually raised to its working position. This procedure eliminates severe strain to the beater and to the mixer proper and consequently adds to their life and efficiency.

"W" WIRE WHIP



Furnished as part of standard equipment. Used for whipping, creaming, beating eggs, meringues, small amounts of mayonnaise, icings and for whipping milk or cream into mashed potatoes after they have been broken up with "b" batter beater.

MIXING INSTRUCTIONS

Operators have their own pet ways of operating their mixing machines, so no attempt will be made to set up iron clad instructions, but there are certain general principles that should be followed in the various operations. These general principles as listed below should be helpful to old and new operators.

GENERAL POINTS FOR PROPER OPERATION

NOTE: Refer to Mixing Chart before filling bowl.

1. Always start with the bowl in its lowest position.

NOTE: When mashing potatoes, kneading dough, or any operation of a similar nature, it is advisable to start the beating with the bowl at its lowest position and as the potatoes or other ingredients break up, the bowl should be gradually raised to its working position. This procedure eliminates severe strain to the mixer and consequently adds to its life and efficiency.

2. In general, start all mixing at slow speed.
3. Gradually raise bowl and its contents to working position.
4. Always return to the neutral position when finishing a mix.
5. Bowl should be filled to at least half capacity for best results.
6. Make sure that bowl-to-beater clearance is about 1/8". Place a 1/8" layer of paper on bottom of bowl to check bowl-to-beater clearance. See instructions on how to raise or lower the beater lock should adjustment be necessary for proper bowl-to beater clearance.

WHIPPING CREAM

The "W" wire whip (refer to Beaters & Whip chart) should be used for whipping cream. Cream to be whipped should be 24 hours old, should contain 30% butter fat and should be well chilled, in fact near freezing temperature is desirable, since the cooler the cream, the better the whipping. Warm cream may turn into butter instead of whipped cream. Some operators like to use the "jacket for bowl" attachment to surround the whipping cream with cold water to maintain a cool temperature. To prevent splashing out of the bowl, start whipping the cream at slow speed and increase the speed as the cream thickens or use a "bowl splash cover" attachment on the bowl.

EGG WHITES

Use the "W" wire whip and be sure that the eggs are at room temperature and that both the mixing bowl and "W" wire whip are free from all traces of fat or oil, or egg whites won't whip. In some installations one bowl will be kept and used exclusively for the oily type mixes. Start beating the eggs at low speed and gradually increase the speed.

MERINGUES

Use the "W" wire whip. Meringues can be made perfect by the gradual addition of sugar to eggs which have not been too stiffly beaten.

MASHING POTATOES

Use the "B" batter beater and pre-heat the bowl and beater. Lower the mixing bowl before putting in the potatoes to be mashed so that the breaking up starts with the bowl at its lowest position; then as the potatoes break up, gradually raise the bowl to its working position. This procedure eliminates severe strain to the mixer and the batter beater. Start the operation on low speed. When the potatoes have been broken up, stop the mixer and add the milk or cream, butter and seasoning. Many operators like to change to the "W" wire whip or the "M" four wing whip for whipping in the milk or cream since more of a whipping action is obtained to produce a fluffier mashed potato.

CAKE BATTERS AND COOKIE DOUGH

Use "B" batter beater. Butter or shortening can be thoroughly creamed in about 10 minutes. The butter or shortening should be at room temperature. Always lower the bowl and start on slow speed and then gradually raise the bowl to its working position. Sugar should be added to recipes at a medium speed. When all of the sugar has been added, stop the mixer and scrape down the sides of the mixing bowl with a spatula to insure a smooth mix. Be careful not to add sugar until the butter or shortening has been thoroughly creamed. Some recipes call for yolks and whites to be beaten separately. This is not necessary with your Blakeslee Mixer as the mechanical mixing is efficient enough to allow the addition of whole eggs. When adding dry ingredients, stop the mixer occasionally and scrape the upper part of the bowl with a spatula to make sure that every portion will be efficiently mixed into the recipe. Always operate the mixer on slow speed while adding dry ingredients. Many operators use the Blakeslee-Built bowl extension ring to help confine ingredients to the mixing bowl. Add dry ingredients alternately with liquid, starting and ending with dry ingredients. Do most of the beating before the flour and milk are added. Over beating after addition of these two ingredients causes a sub-standard mixture.

MIXING DOUGH

Always use the spiral dough hook for mixing heavy doughs. Do not overload the mixer with too large batches. (See the capacity chart of this booklet for capacities of the various size bowls.) When using the spiral dough hook, the mixing should be started at low speed only with the bowl in the lowest position; then as the mixing continues, the bowl should be gradually raised to its working position. Remember - an increased mixing time means a decreased fermentation time. Weighing materials each mixing time will insure a standard product. Stop the mixer occasionally to lower the dough mass from the hook and to scrape the bowl.

IMPORTANT. In mixing heavy doughs, be sure to use the dough hook, be sure not to overload the mixer (see the capacity chart), and be sure to start the mixer on low speed with the bowl in its lowest position.

BISCUIT MIX

Use "W" wire whip and bowl extension ring (to confine ingredients to bowl). Mix shortening and dry ingredients until shortening is blended and mixture is granular in appearance. Turn off mixer. Scrape bowl down with bowl knife. Store in covered can until ready for use. (Use beater or dough hook when adding liquid; start mixing on slow speed and bowl in lowest position, then gradually raise to working position. Do not over mix.)

PASTRIES

Use the "PK" pastry knife, as pastries should be mixed with as little "rubbing" as possible. The "PK" pastry knife leaves the shortening in small pieces to produce as flaky product. Remember, over-worked dough makes tough pastry, and working in too much flour tends to toughen pastry.

SWEET DOUGH

For best results use the "SD" sweet dough beater.

Mixing Bowl Capacity Chart

BOWL CAPACITY		60 QUARTS	80 QUARTS
MODEL —	PAINTED FINISH	DD-60	DD-80
	SAME BUT WITH TIMER	DD-80T	DD-80T
	DELUXE POLISHED ALUMINUM	DD-60D	DD-80D
	SAME BUT WITH TIMER	DD-80DT	DD-80DT
MOTOR		2 H.P.	2 H.P.
SMALL BOWLS AVAILABLE AS EXTRA, WITH REQUIRED ADAPTORS		30 QT. OR 40 QT.	30 QTS., 40 QTS. OR 60 QTS.
SPACE REQUIRED — COMPLETE OVERALL	BENCH	—	—
	FLOOR	50" x 32"	50" x 32"
KITCHEN MATERIALS		CAPACITY CHART (FINISHED MATERIALS)	
EGG WHITES		2 QTS.	2 QTS.
MASHED POTATOES		40 LBS.	50 LBS.
MAYONNAISE (QTS. OF OIL)		18 QTS.	22 QTS.
MERINGUE (PTS. OF WATER)		1½ QT.	3 QTS.
WAFFLE OR HOT CAKE BATTER		24 QTS.	30 QTS.
WHIPPED CREAM		12 QTS.	16 QTS.
BAKE SHOP MATERIALS			
ANGEL FOOD (8-10 OZ. CAKE)		45	60
BOX OR SLAB CAKE		50 LBS.	80 LBS.
CUP CAKES		70 DOZ.	90 DOZ.
LAYER CAKES		60 LBS.	80 LBS.
POUND CAKE		55 LBS.	80 LBS.
SHORT SPONGE CAKE		45 LBS.	70 LBS.
SPONGE CAKE BATTER		36 LBS.	54 LBS.
SUGAR COOKIES		100 DOZ.	115 DOZ.
BREAD OR ROLL DOUGH, LIGHT TO MEDIUM 60% AR <input type="checkbox"/>		80 LBS. +	80 LBS. +
BREAD OR ROLL DOUGH, HEAVY 55% AR <input type="checkbox"/>		60 LBS. +	60 LBS. +
PIZZA DOUGH THIN 40% AR <input type="checkbox"/> ☆		40 LBS. ◇	40 LBS. ◇
MED. 50% AR <input type="checkbox"/> ☆		70 LBS. ◇	70 LBS. ◇
THICK 60% AR <input type="checkbox"/> ☆		70 LBS. +	70 LBS. +
WHOLE WHEAT DOUGH 70% AR		70 LBS.	70 LBS.
PIE DOUGH		50 LBS.	60 LBS.
RAISED DOUGHNUT DOUGH 65% AR		30 LBS. ○	40 LBS. ○
EGGS & SUGAR (FOR SPONGE CAKE)		24 LBS.	36 LBS.
FONDANT ICING		36 LBS.	45 LBS.
MARSHMALLOW ICING		5 LBS.	6½ LBS.
SHORTENING & SUGAR CREAMED		48 LBS.	55 LBS.

☐ IF HI-GLUTEN FLOUR REDUCE BATCH 10%.

☆ 2ND SPEED DO NOT USE AT 50% AR OR LOWER.

NOTE: ABSORPTION RATIO (% AR) = WATER WEIGHT DIVIDED BY FLOUR WEIGHT.
CAPACITY DEPENDS ON MOISTURE CONTENT OF DOUGH.

ABOVE CAPACITIES BASED ON 12% FLOUR MOISTURE AT 70° F WATER TEMPERATURE.

◇ 1ST SPEED

+ 2ND SPEED

○ 3RD SPEED

CAUTION: IF HIGHER THAN RECOMMENDED SPEEDS ARE EMPLOYED AND/OR LISTED CAPACITIES ARE EXCEEDED, OVERLOAD CONDITION WILL RESULT.

MIXER CAPACITY

A MIXER CAPACITY CHART IS PROVIDED AS A GUIDE FOR CONTROLLING THE BATCH SIZES. THE CAPACITIES LISTED TAKE INTO ACCOUNT THE AMOUNT OF PRODUCT WHICH CAN BE CONTAINED IN A PARTICULAR SIZE BOWL AND THE TYPE OF DOUGH OR PRODUCT TO BE MIXED AND ITS OWN UNIQUE PROPERTIES WHICH AFFECT MIXER PERFORMANCE.

ALSO CONSIDERED AND NOTED ON THE CHART IS THE BATCH ABSORPTION RATE-THE RATIO OF THE WEIGHT OF WATER TO THE WEIGHT OF FLOUR EXPRESSED AS A PERCENTAGE. THE ABSORPTION RATE (AR) MEASURES HOW HEAVY A BATCH IS OR THE DENSITY OF THE BATCH. IN FACT, THE CAPACITIES LISTED ON THE CAPACITY CHART FOR THE PRODUCTS LISTED BELOW ARE BASED ON THE FOLLOWING ABSORPTION RATES:

<u>PRODUCT</u>	<u>ABSORPTION RATE</u>
HEAVY BREAD DOUGH	55%
MEDIUM BREAD DOUGH	60%
LIGHT BREAD DOUGH	65%
PIZZA DOUGH	50%
RAISED DONUT DOUGH	65%

WHEN MIXING ANY OF THE ABOVE PRODUCTS WITH AN ABSORPTION RATE LOWER THAN LISTED, THE BATCH SIZE SHOULD BE DECREASED PROPORTIONATELY TO INSURE EFFICIENT MIXING OF THE PRODUCT AND ELIMINATE THE POSSIBILITY OF OVER-LOADING YOUR MIXER. FOR EXAMPLE: A DD-60 MIXER HAS A PIZZA DOUGH CAPACITY OF 40 POUNDS AT FIRST SPEED BASED ON AR OF 50% ACCORDING TO THE CAPACITY CHART. IF THE BATCH TO BE MIXED HAS AN AR OF 45%, THE BATCH SIZE MUST BE REDUCED TO COMPENSATE FOR THE DIFFERENCE. THE SIZE OF THE REDUCTION IS COMPUTED AS FOLLOWS:

1. DIVIDE THE AR OF THE BATCH TO BE MIXED BY THE AR LISTED ON THE CAPACITY CHART.

$\frac{45\% \text{ ACTUAL AR}}{50\% \text{ RATED AR}} = 90\%$

2. MULTIPLY THE RATED BATCH SIZE BY THE PERCENTAGE OBTAINED IN STEP 1. THE RESULT IS THE MAXIMUM BATCH SIZE OF THE DD-60 MIXER FOR PIZZA DOUGH WITH A 40% AR.

$\begin{array}{r} 40 \text{ LBS. RATED BATCH SIZE} \\ \times 90\% \\ \hline 36 \text{ LBS. MAX. CAP @ 45\% AR} \end{array}$

ANOTHER FACTOR OFTEN OVERLOOKED IS THE ABILITY OF YOUR MIXER TO OPERATE AT A HIGHER SPEED. FOR EXAMPLE, THE DD-60 HAS A 60 POUND CAPACITY OF HEAVY BREAD DOUGH WITH AN AR OF 50% IN SECOND SPEED. THE BATCH COULD BE MIXED IN THIRD SPEED BUT THE BATCH MUST BE REDUCED BY HALF TO 30 POUNDS. CONVERSELY, A BATCH MAY BE INCREASED BY HALF TO 90 POUNDS IF FIRST SPEED WERE USED PROVIDED THE BOWL IS LARGE ENOUGH TO HOLD ANOTHER 30 POUNDS OF DOUGH. HOWEVER, WHILE THE MIXER IS CAPABLE OF HANDLING A LARGER BATCH, A CHANGE IN SPEED WILL AFFECT DEVELOPMENT OF THE PRODUCT AND MAY RESULT IN QUALITY BEING SACRIFICED FOR QUANTITY.

YOUR BLAKESLEE MIXER IS DESIGNED AND INTENDED TO MIX YOUR PRODUCTS IN THE MOST EFFICIENT WAY POSSIBLE. THERE IS NO NEED FOR YOU TO SACRIFICE INDIVIDUAL CHARACTERISTICS WHEN USING YOUR BLAKESLEE MIXER. CARE SHOULD BE TAKEN DURING YOUR BATCH MIXING. WHEN RESULTS ARE EXACTLY TO YOUR LIKING, NOTE CAREFULLY THE TIME OF OPERATION AND THE SPEED SETTING. UNDER THE SAME CONDITIONS YOUR BLAKESLEE MIXER WILL PERFORM EXACTLY THE SAME, DAY-AFTER DAY, PROVIDING UNIFORMITY OF YOUR PRODUCT.

A WORD OF CAUTION: DO NOT OVERMIX. OVERMIXING CAN ADVERSELY AFFECT THE TEXTURE OF THE PRODUCT YOU ARE MIXING. YOU WILL ALSO DISCOVER THERE IS OFTEN A SAVING IN THE TIME REQUIRED FOR EACH MIXING OPERATION, AND THAT EVEN DELICATE PRODUCTS USUALLY MIXED BY HAND CAN BE ADAPTED TO YOUR MIXER.

AVAILABLE BEATERS, WHIPS AND ACCESSORIES. _____

Item		DD-60T			DD-80T			
		30 qt.	40 qt.	60 qt.	30 qt.	40 qt.	60 qt.	80 qt.
Bowl Capacity								
Bowl-Stainless Steel	PART NO.	98513	98508	98108	98513	98508	99059	98023
Bowl Adapter	PART NO.	99040	99040	Not Req'd	99100	99100	Not Required	
"B" Batter Beater	PART NO.	98521	98515	98268	98521	98515	98268	98019
"B" Batter Beater —Stainless Steel	PART NO.	72558		72299	72558		72299	72290
"W" Wire Whip S.S. Wires	PART NO.	98501	98506	98271	98501	98506	98271	98021
"H" Dough Hook	PART NO.	98517	98522	N/A	98517	98522	N/A	N/A
"SH" Spiral Dough Hook	PART NO.	N/A	N/A	98269	N/A	N/A	98269	98020
"SD" Sweet Dough Beater	PART NO.	98520	98516	98504	98520	98516	98504	97681
"PK" Pastry Knife	PART NO.	99481	99479	99472	99481	99479	99472	99470
"M" 4 Wing Whip	PART NO.	98500	98505	98502	98500	98505	98502	97674
Bowl Truck—Painted	PART NO.	7125	7125	15094	7125	7125	7125	15094
Bowl Extension Ring —Stainless Steel	PART NO.	99493	99474	96003	99493	99474	96003	3439
Splash Cover —Stainless Steel	PART NO.	99491	99477	99119	99491	99477	99119	99120

ATTACHMENTS (FOR MIXERS)

9" VEGETABLE SLICERS

9" VEGETABLE SLICER COMPLETE WITH ADJUSTABLE SLICER
PLATE AND HOPPER FRONT PART NO. 20581

JULIENNE PLATE 3/16" ... PART NO. 95043
FRENCH FRY PLATE 3/8" ... PART NO. 95045
GRATER PLATE.....PART NO. 15071
SHREDDER PLATES 3/32"...PART NO. 15088
 3/16"...PART NO. 15021
 5/16"...PART NO. 15019
 1/2"....PART NO. 15072

HUB AND SHAFT ASSEMBLY (ONLY ONE REQUIRED FOR
ALL SIZES OF SHREDDER AND GRATER PLATES).
PART NO. 20599

9" CHEESE SHREDDER ATTACHMENT

9" CHEESE SHREDDER COMPLETE WITH HUB & SHAFT,
5/16" SHREDDER PLATE AND HOPPER FRONT.
PART NO. 99731

FOOD & MEAT CHOPPER ATTACHMENT

MEAT CHOPPER, DOUBLE TINNED,
WITH KNIFE & 1/8" PLATE

PART NO. 20447

EXTRA KNIVES FOR MEAT CHOPPER

PART NO. 1901

EXTRA PLATES FOR MEAT CHOPPER

1/8"....PART NO. 1902

3/16"...PART NO. 1903

1/4"....PART NO. 1904

3/8"....PART NO. 1905

1/2"....PART NO 1906

COMBINATION RECEIVING PAN BRACKET AND OVERSHELF

60 AND 80 QT. MODELS.....PART NO. 72314

ACCOMMODATES 10" X 16" PAN
USED INSTEAD OF PLASTIC BAG.
(PAN NOT INCLUDED)

INSTALLATION INSTRUCTIONS

SHIPMENT CHECKOUT & UNCRATING

UNIT IS SHIPPED STANDARD COMMERCIAL PACKING, SHOULD ANY DAMAGE BE OBSERVED ON VISUAL INSPECTION OF THE CRATE ADVISE THE FREIGHT CARRIER IMMEDIATELY, AS HIDDEN DAMAGE MAY EXIST.

NO SPECIAL EQUIPMENT IS REQUIRED TO UNCRATE THE UNIT, HOWEVER, CARE SHOULD BE TAKEN TO ENSURE THAT NO DAMAGE IS CAUSE BY THE IMPLEMENTS USED IN UNCRATING THE MACHINERY.

IMPORTANT!

INSTALLATION MUST BE MADE OBSERVING ALL APPLICABLE ELECTRICAL/ LOCAL CODES.

INSTALLATION AND SET-UP

PLACE MIXER IN CORRECT LOCATION WITH PROPER CLEARANCE AS CLOSE AS POSSIBLE TO THE INTENDED POWER SUPPLY. SANITATION REQUIREMENTS FOR FOOD PREPARATION AREAS INDICATE THAT A CLEAN, ADEQUATELY LIGHTED AND VENTILATED ROOM WITH GOOD STORAGE FACILITIES FOR ACCESSORIES IS NECESSARY.

FOR SHIPBOARD INSTALLATIONS, HOWEVER, IT IS RECOMMENDED THAT THE MIXER BE BOLTED TO THE DECK USING THE MOUNTING HOLES PROVIDED IN THE BASE OF THE MIXER. USE SHIMS TO LEVEL THE MIXER IF THE FLOOR IS UNEVEN.

DECK BOLT DOWN

MACHINE IS EQUIPPED WITH BOLT DOWN LEGS, FOLLOW DIRECTIONS FOR LOCATING AND LEVELING MACHINE. REF: FIGURE A PAGE 16 AND MACHINE INSTALLATION DATA DRAWINGS ON PAGE 16. SHIM TO LEVEL AS REQUIRED.

USE APPROPRIATE ANCHORS AND BOLTS REQUIRED FOR MOUNTING TO DECK MATERIAL I,E, CONCRETE, STEEL ETC.

INSTALLER WARNING!

ELECTRICIAN

ENSURE TO DOUBLE CHECK MOTOR ROTATION IS CORRECT WHEN MACHINE HAS BEEN CONNECTED AND YOU ARE READY TO PROCEED WITH ACTUAL TEST OPERATION OF MACHINE PER INSTALLATION INSTRUCTION. SHOULD MOTOR ROTATION BE INCORRECT INTERCHANGE ANY TWO (2) LINE LEADS IN A THREE PHASE SYSTEM.

ELECTRICAL CONNECTIONS

ELECTRICAL REQUIREMENTS ARE LOCATED ON THE SERIAL NO. PLATE ON LEFT SIDE OF THE MIXER BELOW THE ELECTRICAL CONNECTION POINT.

CAUTION

CHECK MACHINE DATA PLATE BEFORE MAKING ANY ELECTRICAL CONNECTIONS. ALL SUPPLY CONNECTIONS MUST CORRESPOND WITH DATA PLATE INFORMATION.

REFER THE ELECTRICAL CONNECTION TO A QUALIFIED ELECTRICIAN.

THE POWER SUPPLY FOR MIXERS HAVING 3 PHASE MOTORS MUST BE CONNECTED SO THAT THE MIXER'S PLANETARY TURNS IN THE DIRECTION OF THE ARROW ON THE PLANETARY HEAD.

IT IS IMPORTANT THAT THE ELECTRICAL CONNECTION BE MADE IN ACCORDANCE WITH ALL LOCAL ELECTRICAL CODES AS WELL AS THE NATIONAL ELECTRICAL CODE. BLAKESLEE MODEL DD60 AND DD80 MIXERS ARE LISTED BY UNDERWRITERS LABORATORIES AND CERTIFIED BY THE CANADIAN STANDARDS ASSOCIATION.

LONG TERM STORAGE

SHOULD IT BECOME NECESSARY TO PREPARE UNIT FOR LAY UP, ENSURE TO TAG MACHINE THIS END UP/DO NOT TIP. MACHINE REQUIRES NO DRAINING OF LUBRICANTS AND SHOULD BE PROTECTED FROM THE ELEMENTS. TO PLACE UNIT BACK INTO SERVICE FOLLOW INSTALLATION INSTRUCTIONS.

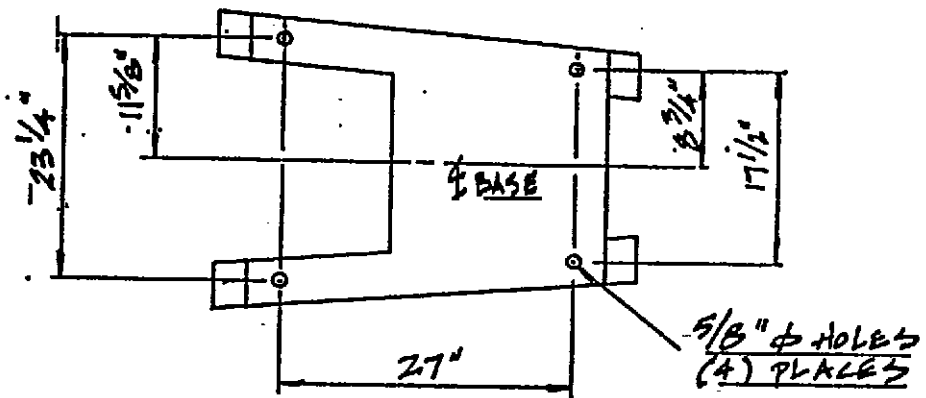
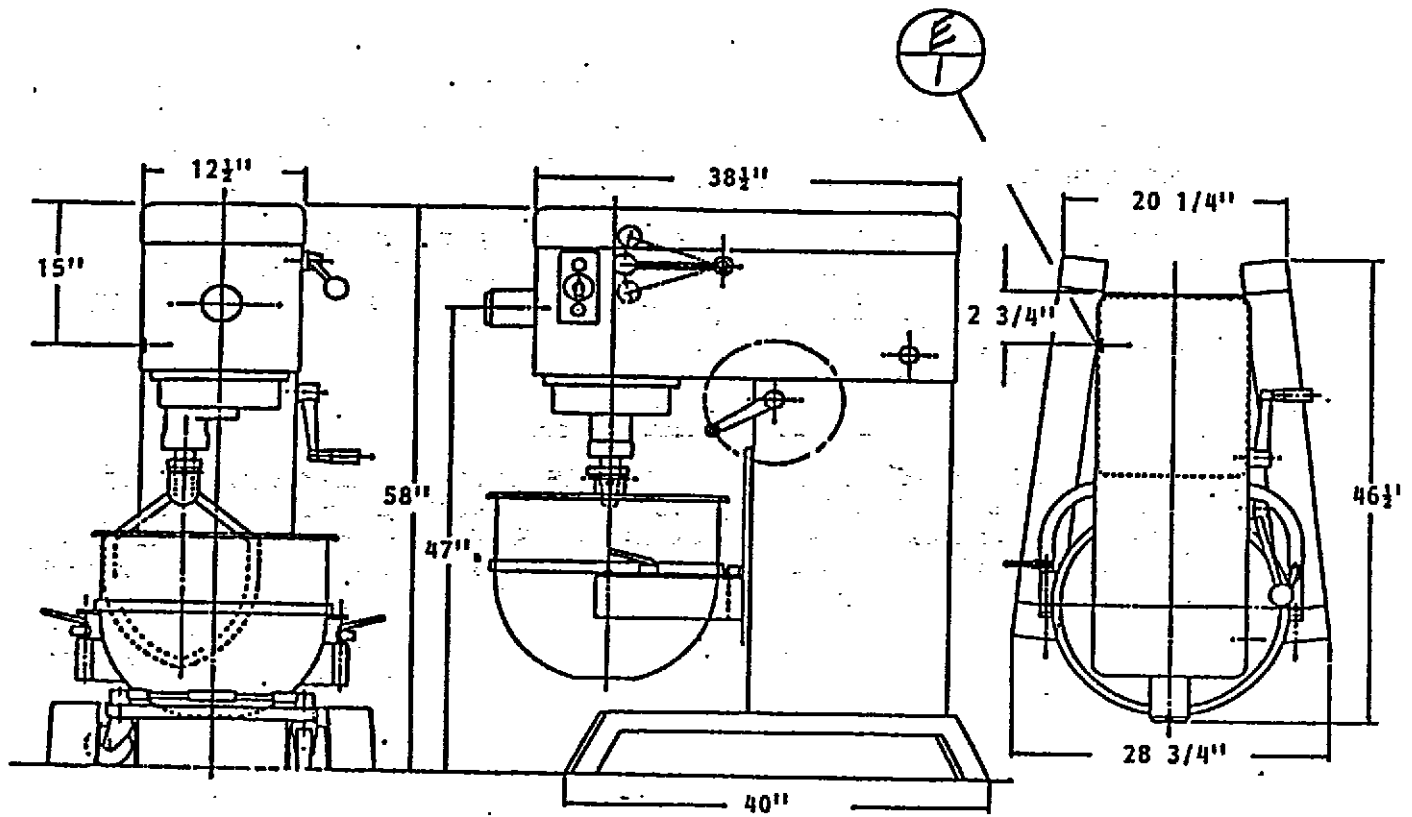


FIGURE A
BASE DETAIL
MEMOR HOLE LOCATIONS

NO.	CONNECTION	FITT.	FUNCTION	DATA FROM FLR.
$\frac{E}{1}$	ELECTRIC 3AA 440VAC/60HZ/3PH.	7/8"	MOTOR & CONTROLS	43'

INSTALLATION DETAIL & DIMENSIONAL DRAWING

OPERATION

WITH THE BOWL LIFT IN THE DOWN POSITION, INSTALL THE BOWL SO THAT THE BOWL YOKE PINS ENGAGE THE HOLES IN THE BOWL LUGS, THEN CLAMP THE BOWL IN POSITION BY MEANS OF THE BOWL CLAMPS.

TO INSTALL THE DESIRED ATTACHMENT TO THE BEATER SHAFT, SLIDE THE ATTACHMENT UP ON THE BEATER SHAFT SO THAT IT ENGAGES THE BEATER SHAFT DRIVE PIN, THEN TURN THE ATTACHMENT SO THAT IT LOCKS ATTACHMENT TO THE BEATER SHAFT.

FILL THE MIXING BOWL WITH THE DESIRED INGREDIENTS, USING THE MIXER CAPACITY CHART AS A GUIDE, SEE PAGE 9 TO ENSURE AGAINST OVERLOADING THE MIXER. WAIT UNTIL THE ATTACHMENT IS TURNING BEFORE RAISING THE BOWL TO WORKING POSITION WITH BOWL LIFT CRANK, LOCATED ON THE RIGHT SIDE OF MACHINE.

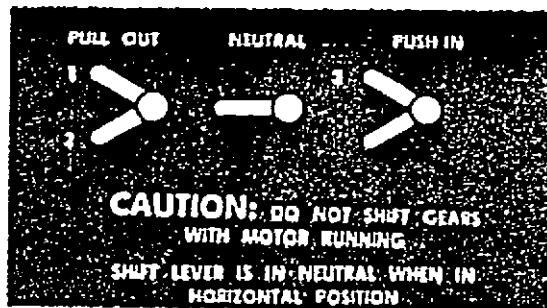
STARTING THE MIXER

MOVE THE GEAR SHIFT LEVER TO THE DESIRED MIXING SPEED POSITION, USING THE INSTRUCTION PLATE ON THE MIXER AS A GUIDE. TURN THE AUTOMATIC TIMER KNOB TO SET DESIRED MIXING TIME, OR TURN IT TO THE HOLD POSITION FOR CONTINUOUS OPERATION, THEN DEPRESS THE START BUTTON. CHECK THAT THE PLANETARY TURNS IN THE DIRECTION OF THE ARROW ON THE PLANETARY HEAD. CAREFULLY RAISE THE BOWL BY MEANS OF THE HAND CRANK.

TO STOP THE MIXER, SIMPLY DEPRESS THE STOP BUTTON. IF THE TIMER IS BEING USED, IT WILL STOP THE MIXER AUTOMATICALLY AFTER THE SET TIME HAS ELAPSED.

SPEED SELECTION

THE MIXER HAS FOUR SPEEDS THAT CAN BE CHANGED ONLY AFTER THE MIXER HAS COME TO A COMPLETE STOP. DO NOT ATTEMPT TO CHANGE SPEEDS WHILE THE MOTOR IS RUNNING.



IF THE GEAR SHIFT LEVER DOES NOT MOVE READILY INTO THE SELECTED POSITION, THE GEARS WITHIN THE TRANSMISSION ARE NOT PROPERLY ALIGNED. TO REMEDY THIS CONDITION, TURN THE TIMER TO THE '0' POSITION, PRESS THE START BUTTON MOMENTARILY TO JOG THE GEARS, THEN MOVE THE GEAR SHIFT LEVER TO THE DESIRED POSITION WHEN THE PLANETARY COMES TO A STOP.

NOTE: MIXER WILL NOT START AND RUN UNLESS PROPERLY ENGAGED IN A SELECTED GEAR DUE TO AN ELECTRICAL INTERLOCK SAFETY SWITCH DESIGNED TO PREVENT DAMAGE TO THE TRANSMISSION AND PLANETARY GEARS IF INADVERTANTLY CHANGED WHILE IN OPERATION.

<u>SPEEDS</u>	<u>AGITATOR</u>	<u>AUX. DRIVE SPEED</u>
	(RPM)	(RPM)
FIRST	55	105
SECOND	100	190
THIRD	175	300
FOURTH	315	575

CAUTION

DO NOT ATTEMPT TO OPERATE MACHINE WITHOUT ATTACHMENTS OR AGITATORS AND BOWL BEING PROPERLY INSTALLED, AS DAMAGE TO COMPONENTS MAY INCUR. FAILURE TO DO SO MAY RESULT IN BODILY INJURY.

USING THE ATTACHMENT HUB

POWER HUB LOCATED ON MIXER FRONT IS USED TO DRIVE VEGETABLE SLICER OR MEAT CHOPPER/GRINDER ATTACHMENTS. THIS HUB HAS FOUR SPEEDS THAT ARE CONTROLLED BY THE GEAR SHIFT LEVER.

TO MOUNT ATTACHMENTS TO THE HUB, FIRST BE SURE MIXER IS COMPLETELY STOPPED AND NOT RUNNING AND THAT THE AGITATOR HAS BEEN REMOVED FROM THE BEATER SHAFT. REMOVE THE HUB COVER, ALIGN THE SQUARE END OF THE ATTACHMENT WITH THE SQUARE DRIVE INSIDE THE HUB AND SLIDE THE ATTACHMENT INTO THE HUB AS FAR AS IT WILL GO. USE THE THUMB SCREW TO LOCK THE ATTACHMENT TO THE HUB.

THE VEGETABLE SLICER MAY BE DRIVEN IN ANY OF THE MIXER'S FOUR SPEEDS. THE MEAT CHOPPER/GRINDER, HOWEVER, IS INTENDED FOR USE IN 1ST OR 2ND SPEED ONLY. OPERATING THE CHOPPER/GRINDER AT A HIGHER SPEED WILL DAMAGE THE CHOPPER/GRINDER AND MAY ALSO CAUSE DAMAGE TO THE MIXER.

OVERLOAD

THE MIXER MOTOR IS CONTROLLED BY A MAGNETIC MOTOR CONTACTOR WITH THERMAL OVERLOAD PROTECTION, THIS THERMAL OVERLOAD DEVICE WITH AUTOMATIC RESET FOR PROTECTION IS INTERNALLY MOUNTED.

IF THE OVERLOAD ACTIVATES AND STOPS THE MIXER, WAIT A FEW MINUTES FOR THE THERMAL ELEMENT TO COOL, THEN PRESS THE START BUTTON. IF THE MIXER IS OVERLOADED, EITHER REDUCE THE BATCH BEING MIXED OR SELECT A SLOWER MIXING SPEED. ANY CONDITION CAUSING THE OVERLOAD MUST BE REMEDIED BEFORE RESTARTING THE MIXER.

ATTENTION OPERATOR!

MACHINE EQUIPPED WITH THERMAL OVERLOAD MOTOR PROTECTION. IF MACHINE SHUTS DOWN DURING OPERATION, CHECK BATCH LOAD BEING MIXED TO ENSURE PROPER CAPACITY, AND ALLOW OVERLOAD TO AUTOMATICALLY RESET. INTERVAL TIME FOR OVERLOAD TO RESET WILL VARY, ACCORDING TO CONDITIONS.

MAINTENANCE

CLEANING THE MIXER

THE MIXER HAS A TOUGH, CHIP-RESISTANT EPOXY ENAMEL FINISH THAT IS EASY TO CLEAN. WE RECOMMEND THAT THE MIXER AND THE BOWLS AND AGITATORS BE WASHED WITH WARM, SOAPY WATER AS SOON AFTER USE AS POSSIBLE TO PREVENT FOOD PARTICLES FROM HARDENING AND BECOMING DIFFICULT TO REMOVE.

ANY CONDENSED MOISTURE OR LUBRICANT THAT WORKS ITS WAY INTO THE DRIP RING ON THE PLANETARY SHOULD BE REMOVED TO PREVENT ITS FALLING INTO THE MIXING BOWL. REMOVE THE DRIP RING BY REMOVING TWO (2) SCREWS AND CAREFULLY PRYING IT FROM THE PLANETARY STRAIGHT DOWN. THOROUGHLY CLEAN THE DRIP RING BOTH INSIDE AND OUT AND WIPE OFF THE PLANETARY, THEN INSTALL THE DRIP RING BACK ONTO THE PLANETARY BY PUSHING IT STRAIGHT UP, USING LIGHT HAMMER TAPS, IF NECESSARY AND REINSTALLING SCREWS.

LUBRICATION

THE MIXER HAS BEEN CAREFULLY LUBRICATED AT THE FACTORY PRIOR TO SHIPMENT AND REQUIRES NO LUBRICATION AT TIME OF INSTALLATION. LUBRICANTS WILL LAST THE LIFE OF THE MACHINE.

THE LUBRICANT IN THE TRANSMISSION IS SEALED AND THERE IS NO CONSUMPTION OR LOSS UNLESS THERE IS LEAKAGE. TRANSMISSION LUBRICANT REQUIRES NO CHANGE.

THE LOWER PLANETARY GEARS ARE ENCLOSED IN THE SEALED PLANETARY HOUSING AND REQUIRE NO ROUTINE MAINTENANCE.

LUBRICATION CHART

<u>COMPONENT/AREA</u>	<u>FREQUENCY</u>	<u>LUBRICANT</u>
TRANSMISSION	NO CHANGE REQUIRED, ONLY IF REPAIRED	SAE 5-40 DELVAC SYNTHETIC GEAR OIL
PLANETARY GEARS	NONE REQUIRED, ONLY IF REPAIRED	MICROMOLY GREASE
ATTACHMENT HUB DRIVE	NOT REQUIRED, INTERNALLY LUBED	DO NOT GREASE OR OIL

CAUTION

IF LUBRICATION IS APPLIED TO THE AUXILIARY HUB A GREASE-LIKE SUBSTANCE WILL LEAK OUT CAUSING POSSIBLE CONTAMINATION TO THE PRODUCT BEING MIXED.

APPLICATION OF ANY LUBRICATION VOIDS WARRANTY.

BELT TENSION ADJUSTMENT

THE FREQUENCY FOR ADJUSTING THE TENSION OF THE BELT THAT COUPLES THE MOTOR TO THE TRANSMISSION WILL DEPEND ON HOW THE MIXER IS USED. UNLESS THE MIXER HAS BEEN OVERLOADED AND BELT SLIPPAGE BECOMES NOTICEABLE, THE BELT TENSION SHOULD BE CHECKED ANNUALLY. BEFORE ATTEMPTING ADJUSTMENT OF THE BELT TENSION, DISCONNECT THE MIXER FROM THE POWER SUPPLY--LIVE ELECTRICAL PARTS ARE LOCATED INSIDE THE MIXER FRAME. REFERENCE PAGE 20 FOR ADJUSTMENT PROCEDURE.

CORRECTIVE MAINTENANCE

REPAIR/REPLACEMENT

WARNING!!

DO NOT ATTEMPT TO REMOVE OR DISASSEMBLE MIXER COMPONENTS FOR REPAIR OR MAINTENANCE WHILE MIXER IS CONNECTED TO POWER SUPPLY.

FAILURE TO DO SO, MAY RESULT IN BODILY INJURY AND/OR DEATH.

ATTACHMENT HUB BEARINGS, SEE FIGURE 5 PAGE 31

ALSO FIGURE 1 PAGE 25

REMOVE TOP COVER (ITEM 21 PAGE 25) REMOVE THREE (3) BOLTS (ITEM 2 PAGE 31) REMOVE ATTACHMENT HUB (ITEM 11 PAGE 31) PUSH OUT BEARINGS (ITEM 9 AND 10 PAGE 31), TAKING CARE NOT TO SCORE HUB INSIDE BODY. PRESS IN REPLACEMENT BEARINGS IN ORDER, BEARING ITEM 10 FIRST, THEN BEARING ITEM 9.
RE-ASSEMBLE IN REVERSE ORDER.

BELT, SEE FIGURE 4 PAGE 30

ALSO FIGURE 3 PAGE 29

DISCONNECT SUPPLY VOLTAGE FROM MIXER, LOOSEN UPPER SCREWS AND WASHERS (ITEM 3 AND 4 PAGE 29) LOOSEN AND REMOVE LOWER SCREWS AND WASHERS (ITEM 3 AND 4 PAGE 29) LOOSEN BELT TENSION TAKE-UP BOLT (ITEM 5 PAGE 29) AND REMOVE BELT (ITEM 8 PAGE 30), REPLACE.

RE-ASSEMBLE IN REVERSE ORDER.

MOTOR, SEE FIGURE 3 PAGE 29

DISCONNECT SUPPLY VOLTAGE FROM MIXER, LOOSEN UPPER SCREWS AND WASHERS (ITEMS 3 AND 4). LOOSEN AND REMOVE LOWER SCREWS AND WASHERS (ITEM 3 AND 4), LOOSEN BELT TENSION TAKE-UP BOLT (ITEM 5) AND REMOVE BELT.

PULL MOTOR AND BRACKET STRAIGHT UP AND PIVOT TO HORIZONTAL POSITION, RESTING BRACKET ON MIXER SIDE WALL.
REMOVE MOTOR MOUNTING BOLTS AND REMOVE MOTOR REPAIR/REPLACE APPROPRIATE PARTS.
REASSEMBLE IN REVERSE ORDER.

CAUTION!

WHEN REINSTALLING LIMIT SWITCH BRACKET ASSEMBLY ONTO TRANSMISSION, ENSURE THAT THE SWITCHES ARE NOT ACTUATED WHEN TRANSMISSION IS IN THE NEUTRAL POSITION.

DOUBLE CHECK FOR NO ACTUATION WHEN THE SHIFTER SHAFT IS PUSHED IN AND PULLED OUT WHILE IN THE NEUTRAL POSITION.

**CORRECTIVE MAINTENANCE
REPAIR/REPLACEMENT**

TRANSMISSION, SEE FIGURE 1 PAGE 25

ALSO FIGURE 3 PAGE 29, FIGURE 4 PAGE 30 AND FIGURE 5 PAGE 31

REMOVE TOP COVER (ITEM 21 PAGE 25) BY REMOVING SCREW (ITEM 4 PAGE 25). REMOVE ROLL PIN (ITEM 22 PAGE 30) SECURING THE GEAR SHIFT HUB (ITEM 29 PAGE 30), REMOVE THE SHIFT HUB AND HANDLE ASSEMBLY, WITH TRANSMISSION (ITEM 1 PAGE 30) IN 1ST SPEED USE A SQUARE BAR OR OTHER SUITABLE TOOL TO TURN THE ATTACHMENT DRIVER (ITEM 8 PAGE 31) COUNTERCLOCKWISE UNTIL THE THREADS IN THE UNIVERSAL COUPLER (ITEM 6 PAGE 31) ARE FREE, THEN PULL THE ATTACHMENT DRIVER ASSEMBLY STRAIGHT OUT THROUGH THE ATTACHMENT HUB OPENING.

LOOSEN THE FOUR MOTOR BRACKET BOLTS (ITEM 3 PAGE 29) AND RELIEVE BELT TENSION, REMOVE DRIVE BELT (ITEM 8 PAGE 30), LOOSEN AND REMOVE FOUR BOLTS AND LOCKWASHERS THAT SECURE THE TRANSMISSION (ITEM 1 PAGE 30) TO THE MIXER FRAME.

CAREFULLY LIFT TRANSMISSION OUT OF MIXER, TAKING CARE NOT TO DISTURB SHIM WASHERS (ITEM 25 PAGE 30) INSTALLED BETWEEN THE TRANSMISSION BASE AND MIXER FRAME.

REMOVE SPIRAL PINION (ITEM 5 PAGE 30) FROM TRANSMISSION OUTPUT SHAFT.

REMOVE TRANSMISSION PULLEY (ITEM 2 PAGE 31) FROM THE INPUT SHAFT OF THE TRANSMISSION.

CONTROL CIRCUIT ELECTRICAL COMPONENTS, SEE FIGURE 1 PAGE 25

DISCONNECT SUPPLY VOLTAGE AND CIRCUIT WIRING FROM APPROPRIATE COMPONENT (ITEMS 22 THRU 27 AND 31 THRU 50), REMOVE AND REPLACE IN REVERSE ORDER.

SPIRAL GEARS, SEE FIGURE 1 PAGE 25

REMOVE TRANSMISSION PER REPLACEMENT INSTRUCTION, REMOVE ALL BOLTS (ITEM 16 PAGE 25) FROM UNDERSIDE OF GEAR SUPPORT (ITEM 18 PAGE 25) AND REMOVE SPIRAL RING GEAR (ITEM 20 PAGE 25) REPLACE APPROPRIATE PARTS.

RE-ASSEMBLE IN REVERSE ORDER.

PLANETARY, SEE FIGURE 7 PAGE 33

FIGURE 1 PAGE 25

REMOVE BOLT (ITEM 5 PAGE 25) FROM MAIN SHAFT (ITEM 14 PAGE 25) ALLOWING COMPLETE PLANETARY (PAGE 33) ASSEMBLY TO BE PULLED OFF.

REMOVE RETAINING RING (ITEM 11 PAGE 33) AND REMOVE AGITATOR SHAFT (ITEM 5 PAGE 33) FROM PLANETARY ASSEMBLY.

REPAIR/REPLACE APPROPRIATE PARTS.
RE-ASSEMBLE IN REVERSE ORDER.

CORRECTIVE MAINTENANCE REPAIR/REPLACEMENT

BOWL CRANK HANDLE AND SHAFT FIGURE 2 PAGE 27

DRIVE OUT ROLL PINS (ITEM 37 AND 42 PAGE 27) FROM CRANK (ITEM 38 PAGE 27) AND COLLAR (ITEM 29 PAGE 27), PULL CRANK STRAIGHT OUT, LOOSEN BEARING (ITEM 34 PAGE 27) SET SCREWS, ALSO LOOSEN MITER GEAR (ITEM 30 PAGE 27) SET SCREWS AND PULL OUT SHAFT (ITEM 32 PAGE 27) STRAIGHT OUT.

REPAIR/REPLACE APPROPRIATE PARTS.
RE-ASSEMBLE IN REVERSE ORDER.

BEARING HOUSING, SEE FIGURE 6 PAGE 32 AND FIGURE 1 PAGE 25

REMOVE LOWER PLANETARY PER REPLACEMENT INSTRUCTION, REMOVE TRANSMISSION PER REPLACEMENT INSTRUCTION, REMOVE SPACER (ITEM 5 PAGE 32) AND LOWER BEARING ASSY- (ITEM 6 PAGE 32). GRASP ASSEMBLED GEAR/GEAR SUPPORT AND PULL UPWARDS ON MAIN SHAFT (ITEM 14 PAGE 25). REMOVE UPPER BEARING ASSEMBLY (ITEM 6 PAGE 32)

REPAIR/REPLACE APPROPRIATE PARTS.
RE-ASSEMBLE IN REVERSE ORDER.

BOWL SUPPORT, SEE FIGURE 2 PAGE 27

ALSO SEE FIGURE 1 PAGE 25

REMOVE COVER (ITEM 3 PAGE 25), CRANK BOWL SUPPORT TO LOWEST POSITION, LOOSEN CENTER BOLT (ITEM 4 PAGE 27), LOOSEN SET SCREWS (ITEM 19 PAGE 27) AND PUSH DOWN MITER GEAR (ITEM 30 PAGE 27) TO ALLOW CLEARANCE. REMOVE TWO (2) SCREWS (ITEM 26 PAGE 27) INSTALL BLOCKS UNDER BOWL SUPPORT (ITEM 6 PAGE 27) AND PULL FORWARD.

REPAIR/REPLACE APPROPRIATE PARTS AND REASSEMBLE IN REVERSE ORDER.

PULLEYS, SEE FIGURE 4 PAGE 30

PULLEYS ARE SWEDGE/JACK-OUT TYPE HUB, TO REMOVE REPOSITION SCREWS (ITEM 7 AND 9) AND JACK-OUT HUB.
REPAIR/REPLACE APPROPRIATE PARTS.
RE-ASSEMBLE IN REVERSE ORDER.

NOTE: ON LARGER HUB (ITEM 3) SET SCREW MUST BE LOOSENED PRIOR TO REMOVAL.

TROUBLESHOOTING AND REPAIR INSTRUCTIONS

<u>TYPE OF TROUBLE</u>	<u>BASIC REASON</u>	<u>CORRECTIVE PROCEDURE</u>
Mixer will not start.	Main fuse or circuit breaker out.	Reset breaker and change all fuses.
	Overload switch tripped.	Allow overload to reset automatically.
	Wire loose or broken.	Visually check all connections, controls and motor.
Motor runs but beater shaft does not turn.	Belt broken or slipping.	Replace belt or adjust
	Transmission not engaged.	Select proper speed and engage transmission.
Unit runs but will not change speed.	Gear shift interlock out of adjustment.	Reposition limit switches to adjust.
Unit runs hot or stalls.	Improper voltage on motor or motor defective.	To be checked by electrician.
Attachments striking bottom of bowl.	Bowl support out of adjustment.	Set bowl to desired level, loosen stop screw and adjust to desired stop.
Attachments striking side of bowl.	Upper mixer housing out of alignment.	Loosen four upper housing bolts, place attachment on beater shaft, turn to clear bowl completely; realign as required. Tighten four upper housing bolts.
	Attachment bent or bowl dented.	Replace damaged part.
Bowl will not raise or lower.	Elevator nut stripped.	Replace part.
	Elevator drive gears not meshing.	Place gears in contact with one another and tighten set screws.
	Adjustment hand crank broken.	Replace part.
Attachments will not operate under load.	Voltage too low for motor requirements.	Voltage to be tested by electrician.

ILLUSTRATED PARTS SECTION

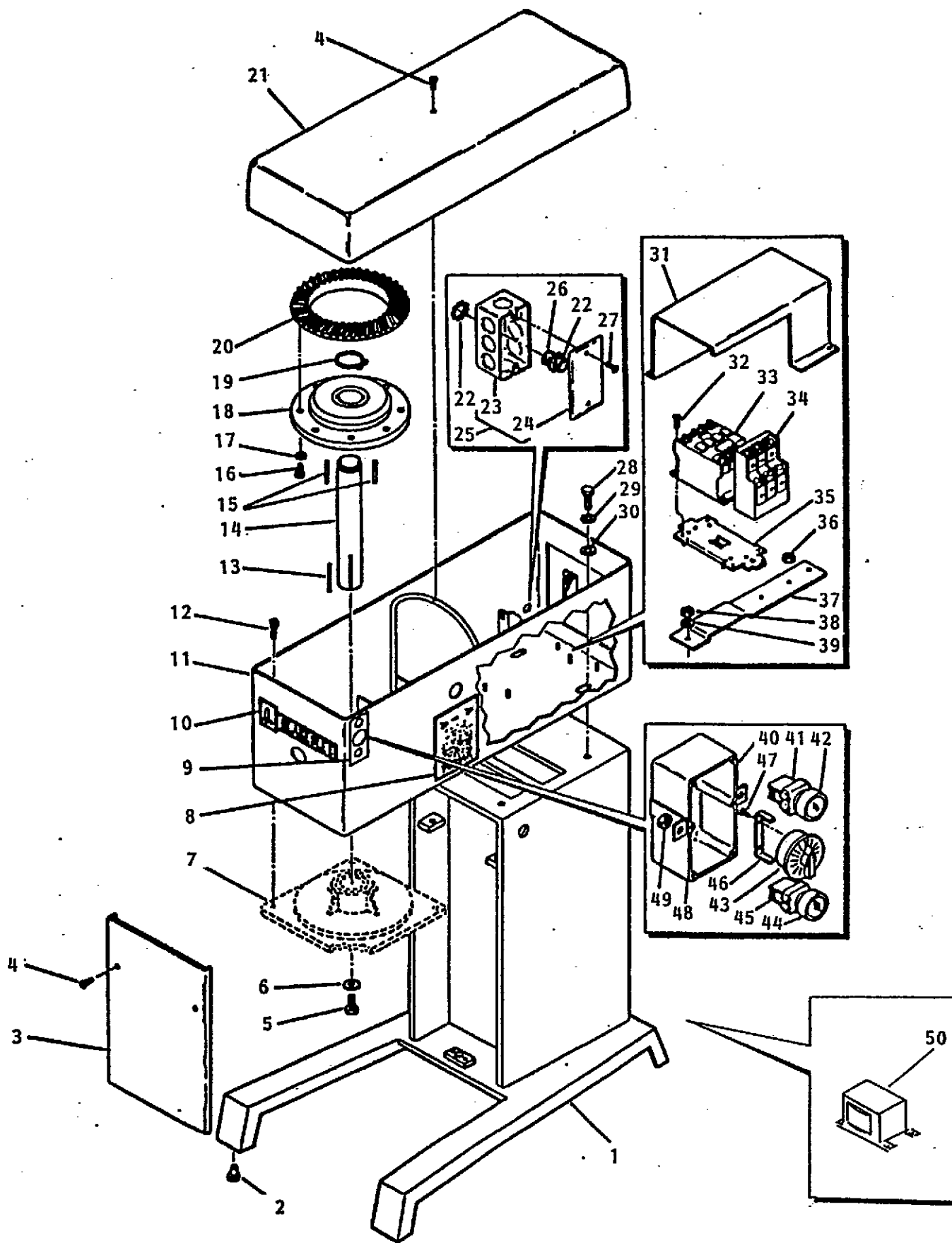


FIGURE 1. COLUMN WELDMENT, UPPER HOUSING, MAIN SHAFT AND ELECTRICAL COMPONENTS

FIGURE 1. COLUMN WELDMENT, UPPER HOUSING, MAIN SHAFT
AND ELECTRICAL COMPONENTS

No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	97763	Column Weldment	1	31	98075	Cover for Controller	1
2	97793	Mixer Foot	4	32	*	Screw	4
3	97803	Column Panel Front	1	33	97579	Contactor-25 Amp with 120 v oil coil	1
4	7580	1/4-20 S.S. R.H.	3	33A	97289	Contactor-22 Amp with 240 v oil coil	1
5	97849	Lg. Hex HD Cap Screw-5/8-18 N.F. x 1-1/4	1	33B	97299	Contactor-22 Amp with 480 v oil coil	1
6	97807	Flat Washer 5/8"	1	34	97300	Overload Thermal Relay-Range 2.5 to 3.9	1
7	97700	Housing-Bearing Weldment	1	34A	97290	Overload Thermal Relay-Range 7.0 to 10	1
8	97843	Label Instruction	1	34B	97292	Overload Thermal Relay-Range 10 to 13	1
9	97278	Label-on/off w/timer	1	34C	97293	Overload Thermal Relay-Range 18 to 25	1
9A	97315	Label on/off without timer	1	35	97709	Bracket for Controller	1
10	96858	Label, Blakeslee Logo	1	36	08132	10-32 NUT	2
11	97779	Housing-Transmission Weldment	1	37	97709	Bracket for Controller	1
12	97846	LG. H. SHCS 5/8-11 nc x 1-1/2" lg	4	38	8132	Nut Hex #10-32	1
13	98399	Key 1/4 x 1/4 x 4"	1	39	7285	Lockwasher-Split #10	1
14	97816	Shaft Main Drive	1	40	98082	Cover	1
15	98402	Key	2	41	97278	Contact Block-Normally Open	1
16	97858	LG. Hex Hd. Machine Screw 3/8-24 x 1"	1	42	97275	"Start" Push Button-operator	1
17	07524	Lockwasher 3/8"	1	43	97933	Timer-5 minutes w/hold circuit	1
18	97702	Bevel Gear Support	1		98083	Timer-15 minutes w/hold circuit	1
19	97838	Ring Retaining	1		15268	Timer-30 minutes w/hold circuit	1
20	97733	Spiral Bevel Gear	1	44	97274	"Stop" Push Button	1
21	97833	Transmission Cover	1	45	97277	Contact Block-Normally Closed	1
	7564	Locknut 1/2"	1	46	97668	Bracket for Timer	1
	97307	Handy Electrical Box & Cover complete (includes items 23 & 24)	1	47	97669	Screw 6-40 x 1/2" Lg. R.H. - for timer	2
24		Handy Electrical Box	1	48	98081	Hold Down Bracket	1
25		Handy Electrical Box Cover	1	49	08132	10-32 NUT	2
26	13965	Nipple-Close 1/2" NPT-1-1/2 lg	1	50	07957	TRANSFORMER	
27		Screw 18-32 x 3/8" lg	1				
28	97847	Cap Screw Lg. Hex HD-3/4 x 10 NC x 2"	4				
29	03584	3/4 Lock Washer	4				
30	03484	3/4 Flat Washer	4				

*NOT AVAILABLE SEPARATELY
INCLUDED W/ P/N 98075,
COVER FOR CONTROLLER

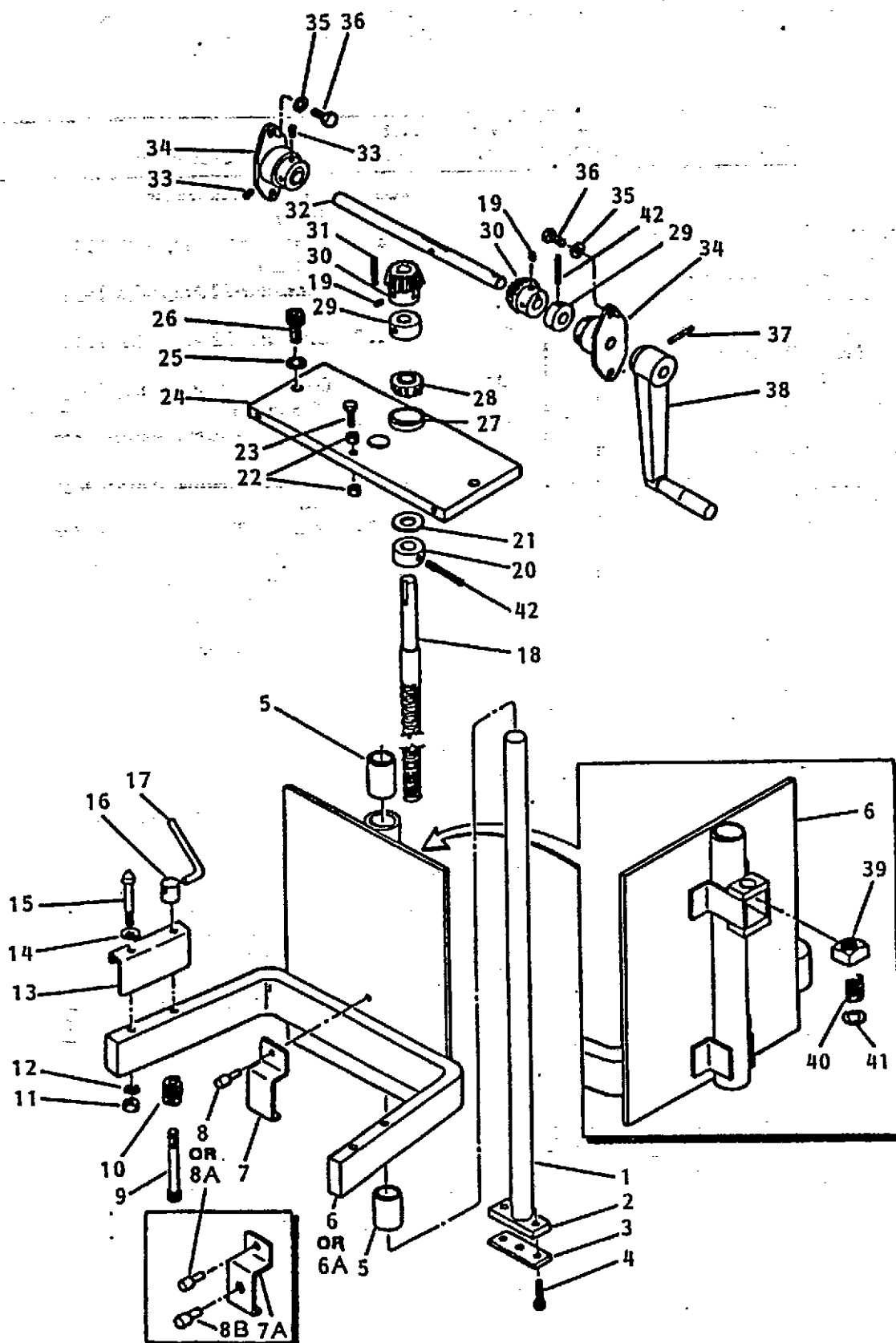
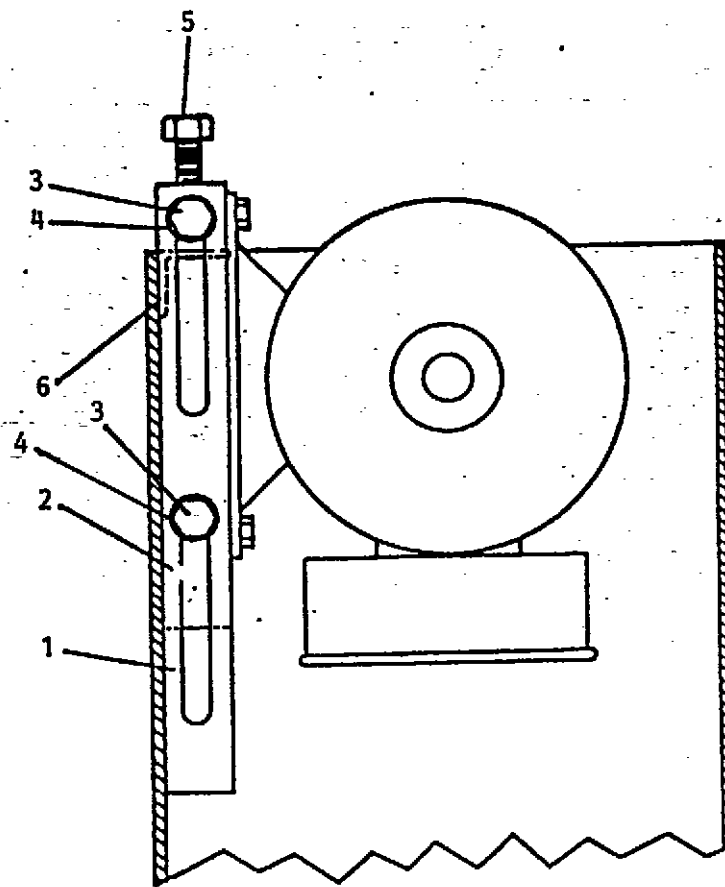


FIGURE 2. BOWL SUPPORT, BOWL SUPPORT CRANK AND BOWL LOCKDOWN ASSY

**FIGURE 2. BOWL SUPPORT, BOWL SUPPORT CRANK AND
BOWL LOCKDOWN ASSY**

Item No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	97799	POST	1	17	97811	BOWL, Clamp Handle	1
2	97798	RETAINER, Post	1	18	97795	SCREW, Elevator	1
3	97819	PLATE, Back-up	1	19	*	SCREW, Allen 5/16-18 x 5/16 lg.	4
4	97846	CAP SCREW, Soc. Hd. 5/16-11 NC x 1-1/2" lg.	1	20	3181	COLLAR, 3/4"	1
5	97837	BEARING, "Rulon"	2	21	98639	THRUST BRG	1
6	97769	BOWL, Support Elevator Weldment (for 80 Qt)	1	22	16323	NUT, 3/8"	2
6A	98152	BOWL, Support Elevator Weldment (for 60 Qt)	1	23	16095	BOLT	1
7	98154	BOWL, Support Rear Shield (for 80 Qt)	1	24	97797	PLATE, Post Support	1
7A	98156	BOWL, Support Rear Shield (for 60 Qt)	1	25	98170	LOCKWASHER, 5/8"	4
8	97800	BOWL, Rear Retainer (for 80 Qt)	1	26	97846	CAP SCREW, Soc. Hd. 5/8-11 NC x 1-1/2" lg.	1
8A	98158	BOWL, Rear Upper Retainer (for 60 Qt)	1	27	17224	TIMKEN CUP	1
8B	98159	BOWL, Rear Lower Retainer (for 60 Qt)	1	28	17225	BEARING	1
9	97761	BOWL, Clamp Stud 3/8"-24 x 4" lg.	1	29	97802	COLLAR	2
10	97822	SPRING, Pressure Die	1	30	97827	GEAR	2
11	7115	NUT, Hex 3/8-16	1	31	98400	KEY	1
12	07524	LOCKWASHER	1	32	97796	BOWL, Rising Shaft	1
13	98157	BOWL, Support Side Shield (for 60 Qt)	1	33	*	SETSCREW, 1/4-27 x 1/4" lg.	4
13A	98155	BOWL, Support Side Shield (for 80 Qt)	1	34	97825	FLANGE, BEARING	2
14	98963	PIN	1	35	05996	LOCKWASHER, 5/16"	4
15	98290	WASHER	1	36	10660	BOLT	4
16	97818	BOWL HUB	1	37	97846	PIN, Grooved	1
				38	97760	CRANKHANDLE, Complete	1
				39	97794	NUT, for Elevator Screw	1
				40	97840	SPRING, Compression	1
				41	97817	WASHER	1
				42	97836	ROLL PIN	1

* NOT AVAILABLE SEPARATELY
INCLUDED W/ P/N 97825 FLANGE BRG,
P/N 03181 COLLAR AND P/N 97827 GEAR



Item No.	Part No.	Description	No. Reqd.
1	97777	MOTOR BASE WELD'MT	1
2	98008	SUPPORT BRACKET WELD'MT	2
3	98011	SCREW, Hex. Hd. 1/2-13 x 1" lg.	3
4	12836	WASHER, Flat 9/16 I.D. x 1-1/4" O.D. x 1/16" thk.	3
5	98012	SCREW, Hex. Hd. 1/2-13 x 3" lg.	1
6	98004	STOP BRACKET	1

FIGURE 3. MOTOR MOUNTING BRACKET ASSY

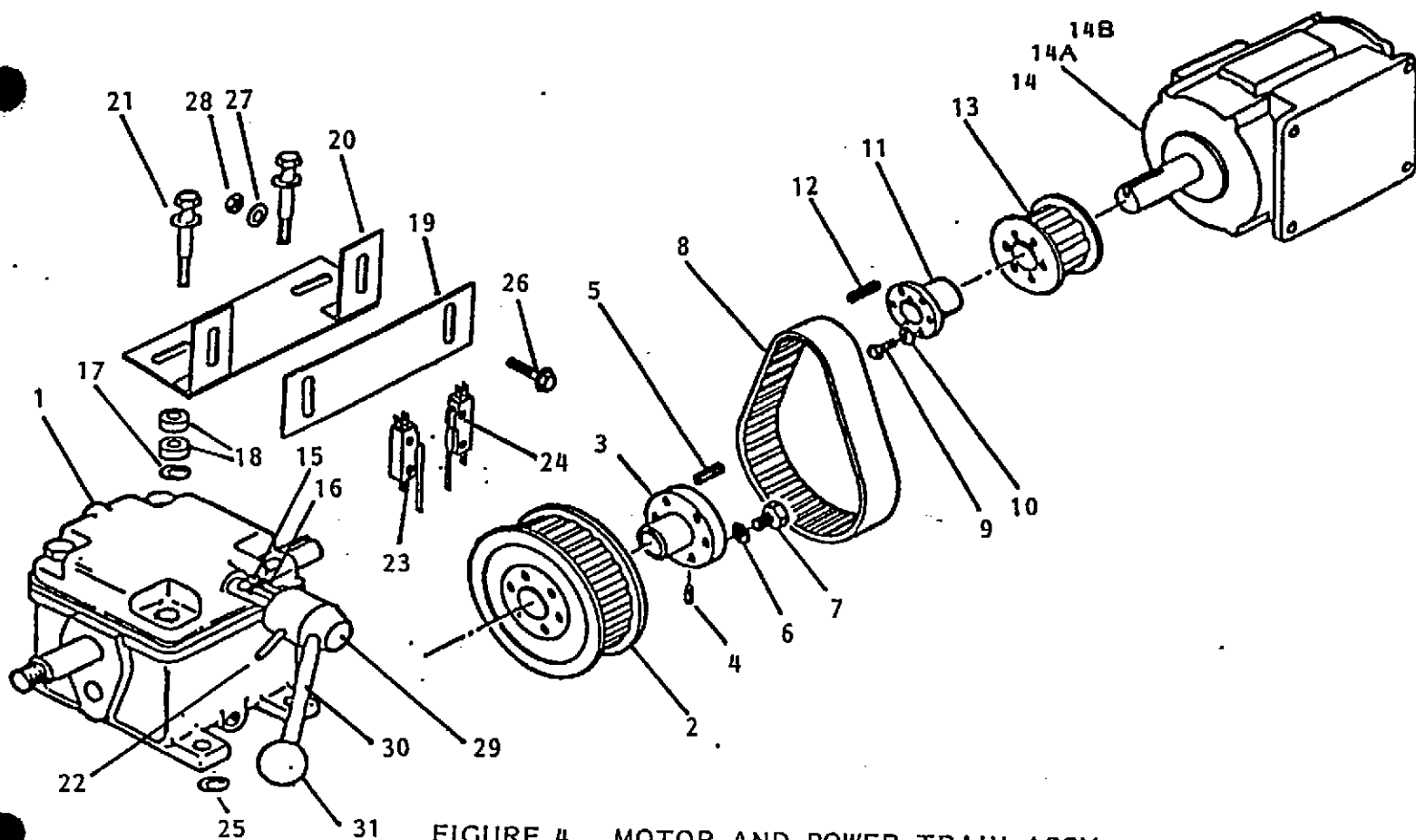


FIGURE 4. MOTOR AND POWER TRAIN ASSY

Item No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	97714	TRANSMISSION	1	17	08523	SEALING WASHER	2
2	97281	PULLEY, 1/2" PITCH POSITIVE DR. 7.639 P.D.	1	18	14082	ROLLER	4
3	97284	HUB	1	19	70409	SWITCH MOUNTING PLATE	1
4	*	SCREW, SET	1	20	70411	SWITCH MOUNTING PLATE	1
5	98398	KEY	1	21	70403	FLAT WASHER	1
6	*	WASHER, LOCK 5/16"	3	22	97836	ROLL PIN	1
7	*	BOLT, 5/16"-18 X 2" LG.	3	23	12122	6-32 ROUND HEAD MACHINE SCREW	4
8	97282	BELT, 1" WIDE POSITIVE DRIVE	1	24	70152	LIMIT SWITCH	2
9	+	BOLT, 3/16-24 X 1" LG.	3	25	05587	FLAT WASHER 11/32" X 3/8"	4
10	+	WASHER, LOCK 3/16"	3	26	14784	BOLT 5/16" X 3/4" LG	2
11	97283	HUB, 7/8" DIA. WITH 1/4" KEYWAY	1	27	05996	LOCKWASHER 5/16"	2
12	98400	KEY	1	28	14786	HEX NUT 5/16"-18	2
13	97289	PULLEY, 1/2" PITCH POSITIVE DR. 2.546 P.D.	1	29	97813	HUB	1
14	97298	2 H.P. MOTOR, 115/230V. 1PH		30	97810	SHAFT	1
14A	97660	2 H.P. MOTOR, 2230/460V. 3PH		31	97826	KNOB	1
14B	15126	2 H.P. MOTOR, 208/230/ 460V. 3PH					
15	99730	SHOULDER SCREW	2				
16	70404	ROLLER	2				

* INCLUDED IN P/N 97284 ASSEMBLY

+ INCLUDED IN P/N 97283 ASSEMBLY

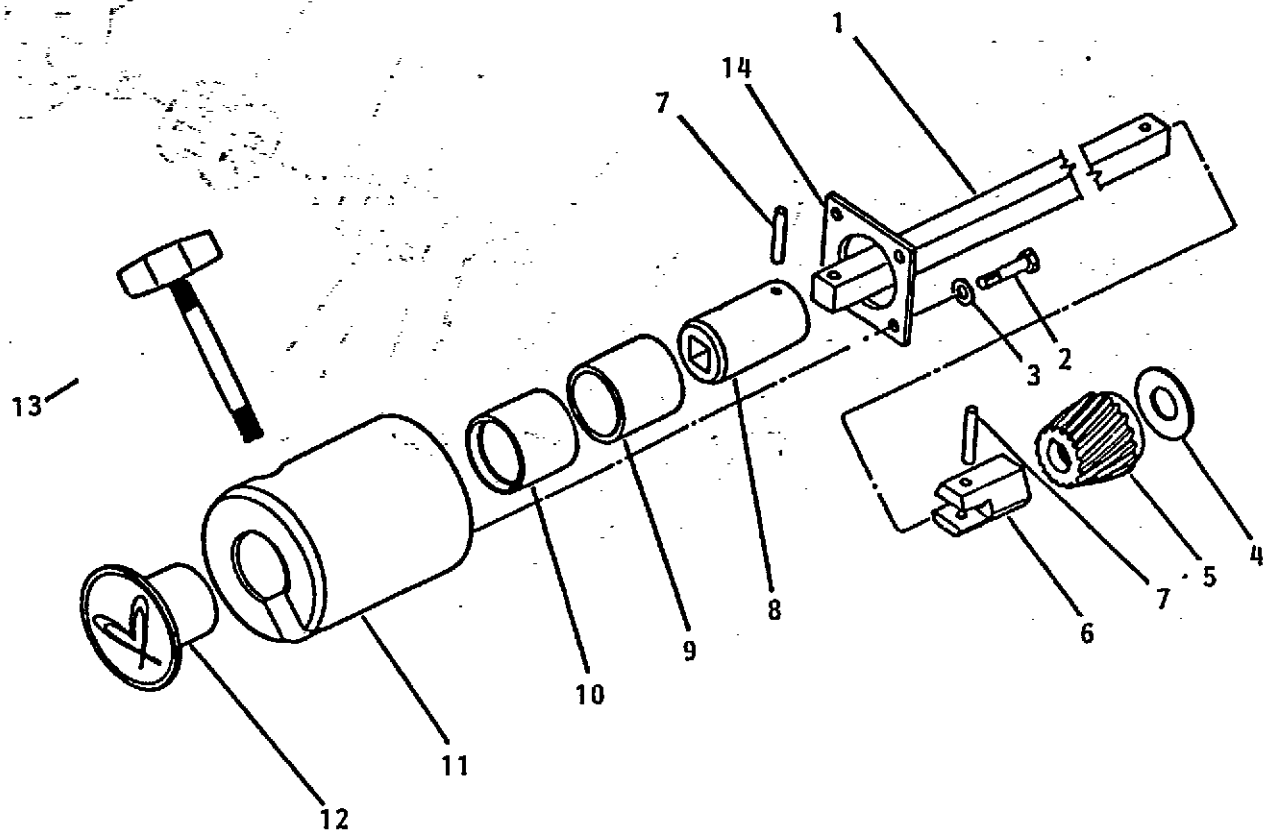


FIGURE 5. AUXILIARY HUB ASSY

Item No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	98483	ADAPTOR, for Attachment	1	10	98379	ADAPTOR, Bearing Attachment	1
2	14784	BOLT, 5/16-18 x 3/4" lg.	1	11	98377	HUB ATTACHMENT	1
3	05996	LOCKWASHER, 5/16 "	1	12	18761	DRIVE CAP, Auxiliary	1
4	97817	WASHER	1	13	98015	SCREW ASSY, Wing Hd.	1
5	97734	GEAR PINION, Spril Bevel	1				
6	97804	CONNECTOR, for Attachment Drive	1	14	97816	RETAINING PLATE, Attachment Hub	1
7	97738	PIN, Spring	2				
8	98484	ADAPTOR, for Attachment	1				
9	98378	SLEEVE, Bearing "Rulon"	1				

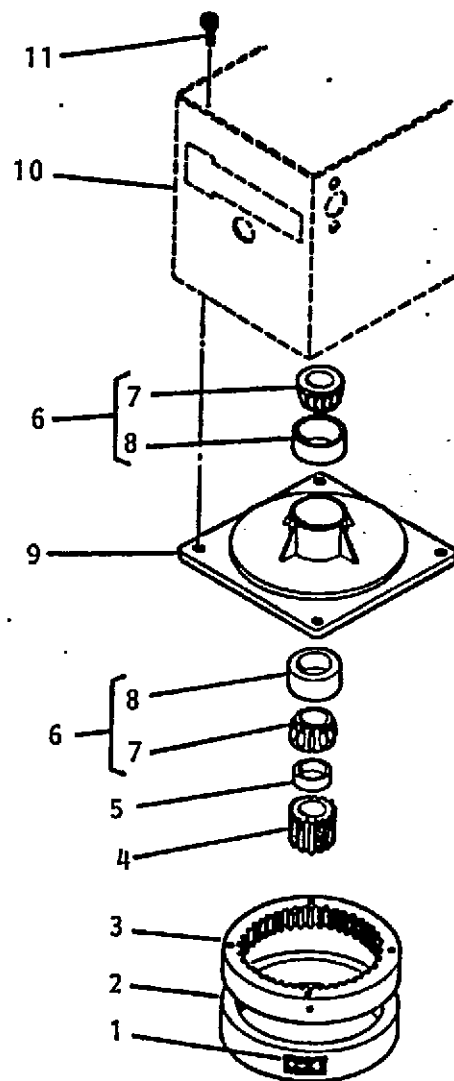


FIGURE 6. LOWER PLANETARY AND BEARING HOUSING ASSY

Item No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	98349	LABEL DIRECTION ARROW	1	9	97700	BEARING HOUSING WELDMENT	1
2	97832	COVER	1	10	97779	TRANSMISSION HOUSING WELDMENT	1
3	97831	GEAR PLANETARY	1	11	97848	CAP SCREW, Soc. Hd. 5/8-11 NC x 1-1/2" lg.	4
4	97842	PINION	1				
5	97809	SPACER	1				
6	97824	BEARING ROLLER (Includes items 7 and 8)	2 *				
7	99191	CONE	*				
8	99190	CUP	*				

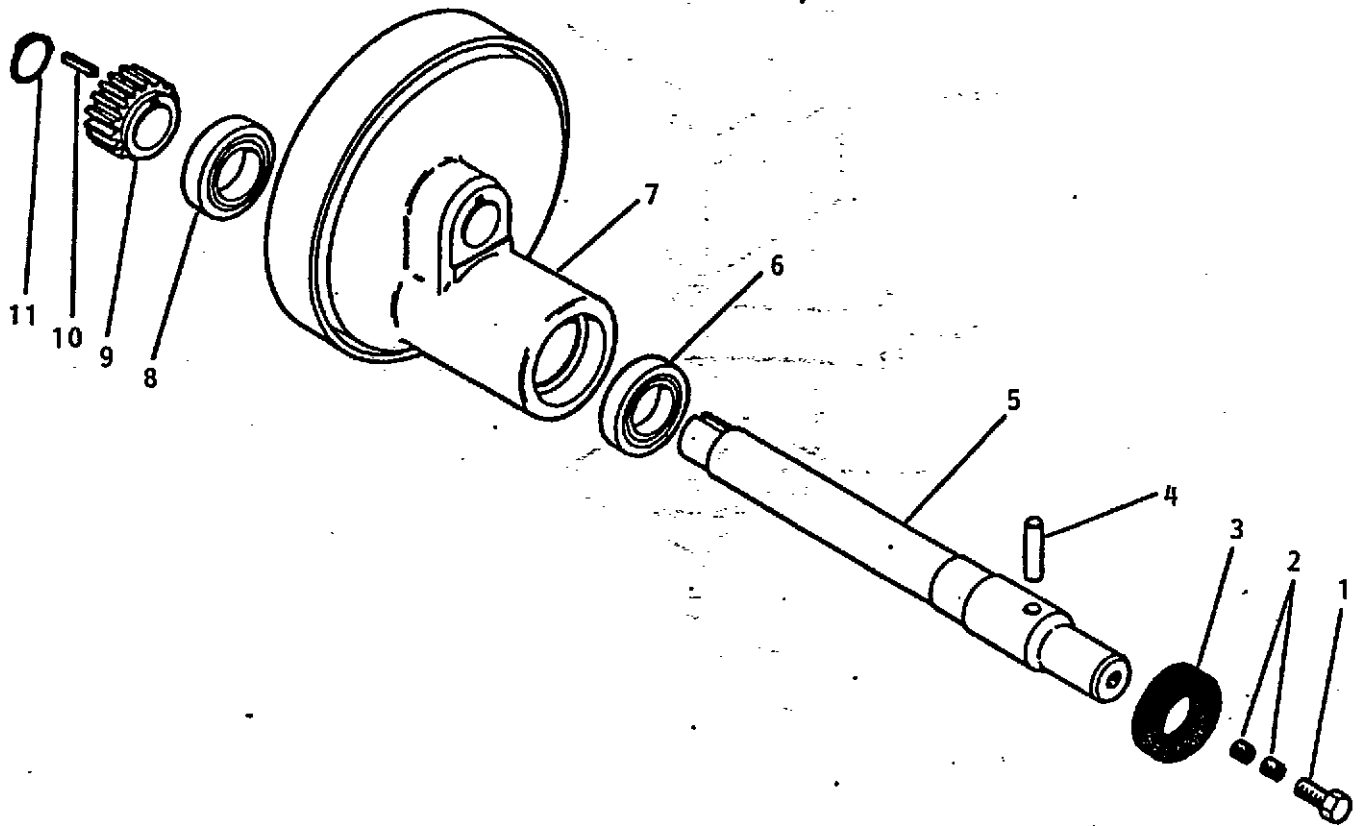


FIGURE 7. PLANETARY AND BEATER SHAFT ASSY

Item No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	97849	CAP SCREW, Hex. Hd. 5/8-18 N.D. x 1-1/4" lg.	1	6	97850	BEARING, Ball	1
2	98094	SETSCREW	2	7	97898	PLANETARY	1
3	97852	SEAL	1	8	97851	BEARING, Ball	1
4	97857	PIN	1	9	97842	PINION	1
5	97830	SHAFT AGITATOR	1	10	98402	KEY, 1/4 x 1/4 x 1-1/4	1
				11	97835	RING, Retaining	1

RECOMMENDED SPARE PARTS LIST FOR
BLAKESLEE MODEL DD-60/80 FOOD MIXERS

Page	Item	Blakeslee Part No.	Description	Manufacturer	Manufacturer Part No.
27	28	17225	Bearing Cone	Timkin	LM-11949
27	40	97840	Compression Spring	Assoc. Spring	C1460-162-1500
27	39	97794	Nut	Blakeslee	M-1-97794
31	13	98015	Screw Assy.	Blakeslee	M-1-98015
25	24	71600	OVERLOAD RELAY	TELEMECANIQUE	LR2-D1308
25	50	07957	CONTROL TRANSFORMER	HEVI-DUTY ELEC.	D47649
24	30	70152	LIMIT SWITCH	UNIMAX	TYPE AT

VENDOR LISTING

Associated Spring
434 W. Edgerton Ave.
Milwaukee, Wisconsin 53207
414/495-4771

Bando american Inc.
1149 W. Bryn Mawr
Itasca, Illinois 60143
312/773-6600

Boston Gear Division
Incom International
14 Hayward Street
Quincy, Massachusetts 02171
617/328-3300

Danley Machine Corp.
Punchrite Division
15400 Brookpark Road
Cleveland, Ohio 44135
216/267-1444

Driv-Lok, Inc.
777 Park Avenue
Sycamore, Illinois 60178
815/895-8161

Johns-Manville
Industrial Products Div.
P. O. Box 5108
Denver, Colorado 80217
303/979-1000

Unimax
15 Riverdale Ave.
Newton, MA 02158
617/964-6400

Leroy-Somer, Inc.
560 South Hicks Road
Palatine, Illinois 60067
312/359-2440

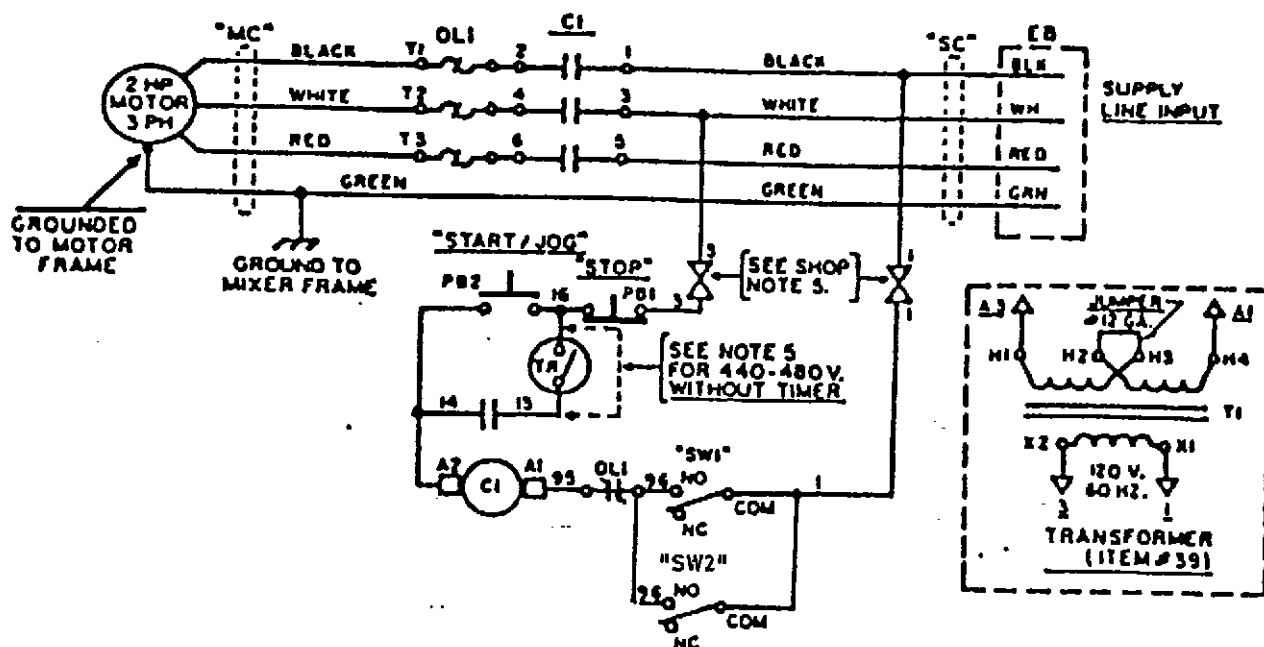
Nice Ball Bearing Co.
Two Crossroads of Commerce
Suite 320
Rolling Meadows, IL 60008

M. H. Rhodes, Inc.
99 Thompson Road
Avon, Connecticut 06001
203/673-3281

Telemecanique, Inc.
2525 S. Clearbrook Drive
Arlington Heights, Illinois 60005
312/437-1150

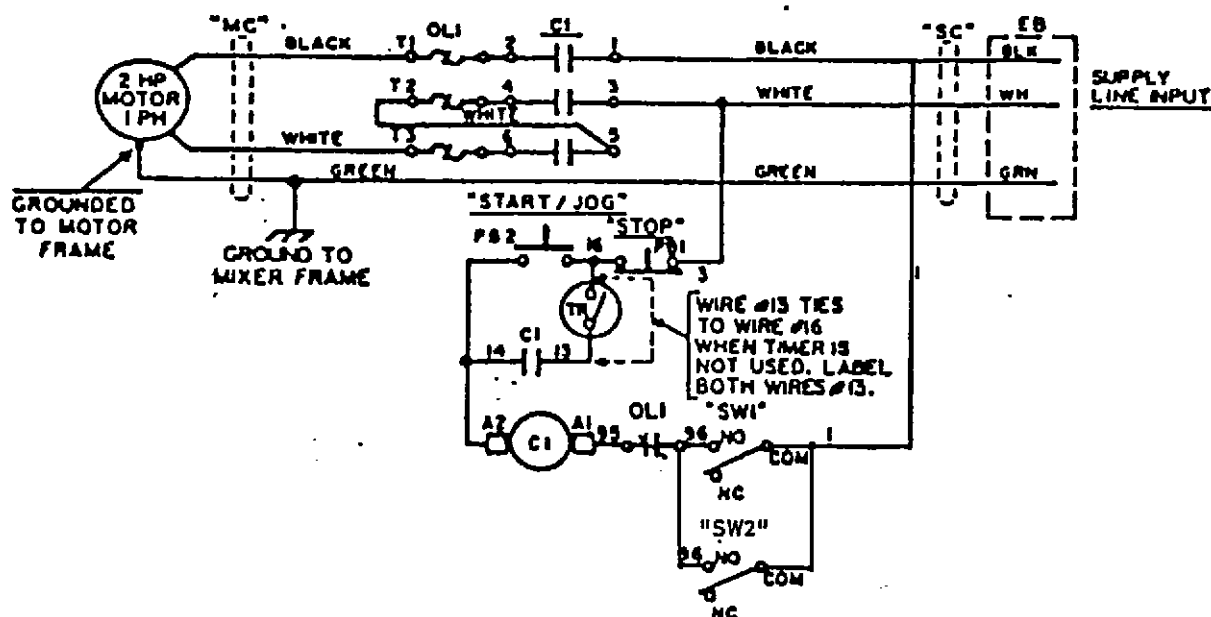
The Timken Co.
16 W. 221 Shore Court
Hinsdale, Illinois 60521
312/325-7800

Hevi-Duty Electric
1101 Wells Street
Lake Geneva, Wisconsin 53147
708/439-4320



WIRING DIAGRAM FOR 208-240/440-480 VOLT THREE PHASE 60 HZ.

- NOTES: 1. ALL CONTROL CIRCUIT WIRING IS #16 AWG. "RED" TYPE "A.W.M." OR "M.T.W." WIRE 600 VOLT, 105°C. RATED. U/L & C.S.A. LISTED.
2. REFER TO SHOP NOTES #4 AND #5 ALSO.



WIRING DIAGRAM FOR 115/230 VOLT SINGLE PHASE 60 HZ.

- NOTE: ALL CONTROL CIRCUIT WIRING IS, #16 AWG. "RED" TYPE: "M.T.W." OR "AWM" WIRE, 600 VOLT, 105°C. RATED. U/L & C.S.A. LISTED.

MOTOR TABLE

ITEM	MOTOR	H.P.	VOLTAGE	PHASE	F.L. AMPS	CYCLE	MOTOR LEAD CONNECTION				
							VOLTAGE	SUPPLY LINE LEADS			TIE-TOGETHER
								L1	L2	L3	
22	M1	2	208-220	3	7.0	60	208-220	(T1,T7)	(T2,T8)	(T3,T9)	(T4,T5,T6)
22	M1	2	440	3	3.5	60	440-480	T1	T2	T3	(T4,T7)(T5,T8)(T6,T9)
23	M2	2	115	1	23.0	60	115	(T1,T3,T8)	(T2,T4,T5)	—	—
23	M2	2	230	1	11.5	60	208-240	T1	(T4,T5)	—	(T2,T3,T8)

NOTES: 1. TO REVERSE MOTOR "M2" INTERCHANGE LEADS "T5" AND "T8".
 2. TO REVERSE MOTOR "M1" INTERCHANGE ANY LINE LEADS.

LIMITED WARRANTY

Your new Blakeslee machine is warranted for 18MOS. from date of installation shown above* against defective materials and workmanship. If any defects are found within the above period, parts and authorized service involved with their replacement will be furnished free of charge. All labor to be performed during regular working hours. Overtime premium will be charged to the customer. All warranty parts are shipped by surface transportation. If other means of transportation is requested, the customer is required to pay the premium charge. This warranty does not apply to damages resulting from errors in installation on the part of other contractors, nor does it apply to machines which have been subject to accident, alteration, misuse or abuse. It is understood that Blakeslee's warranty obligation with respect to machines located outside of the United States or located in the state of ALASKA is limited to the furnishing of replacement parts only. In the state of HAWAII, repair labor is provided free of charge; travel time and expenses paid by the customer. On the Island of Oahu, repair labor, travel time and expenses are provided free of charge. This is the entire and only warranty of Blakeslee. We neither assume nor authorize anyone else to assume for us any other obligation or liability in connection with Blakeslee machines.

Blakeslee

- * In cases where machines are purchased and shipped long before they are installed, the warranty can be extended to 1 year from date of installation or 30 months from date of shipment from our plant in Cicero, Illinois, whichever occurs first, with the purchase of our extended installation warranty.

Consult with the Blakeslee Service Department, Cicero, Illinois, for further explanation and fee schedule of this extended warranty.

Your new Blakeslee product has been carefully manufactured and tested.

Occasionally you may experience a problem with your new Machine and if it is due to a defective part or workmanship, we will be more than happy to repair it at no charge to you as stated in our guarantee.

Like any other piece of equipment that is being heavily used, the machine will require periodic cleaning and maintenance. This cleaning and maintenance is the owner's responsibility and is not covered under our warranty.

WARNING!

OPERATOR SHOULD BE WELL TRAINED INDIVIDUAL, 18 YEARS OF AGE OR OLDER, AS THIS MACHINE HAS POTENTIALLY HAZARDOUS MOVING PARTS. DISCONNECT POWER SUPPLY BEFORE INSTALLING OR REMOVING ACCESSORIES AND/OR CLEANING ATTACHED PARTS. ENSURE ALL GUARDS ARE FIRMLY SECURED; REPLACE ANY MISSING GUARDS.

FAILURE TO DO SO, MAY RESULT IN BODILY INJURY.

NAVSEA (USER) TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER) (NAVSEA S0005-AA-GYD-030/TMMP & NAVSEAINST 4160.3)

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7. USER'S EVALUATION OF MANUAL (Check Appropriate blocks)							
A. EXCEL- LENT	B. GOOD	C. FAIR	D. POOR	E. COM- PLETE			
8. GENERAL COMMENTS							
9. RECOMMENDED CHANGES TO PUBLICATION							
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NAVAL SEA DATA SUPPORT ACTIVITY (Code 5H00)
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5. TITLE OF PUBLICATION			6. REPORT CONTROL NUMBER (6 digit UIC-YY-any four: xxxxxx-03-xxxx)

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